

Private Property, Capital and the State in the Development of White Commercial Farming in South Africa, 1910-1986

Abstract:

This dissertation examines the value of state assistance for small farmers in countries beset by capital deficits. It explores how undercapitalisation inhibited capitalist development of white commercial agriculture in South Africa between 1910 and 1936. From 1937, South Africa's nationalist government intervened in markets through marketing control boards to resolve capital constraints. Accumulation, liberal credit provision and investment followed. Between 1973 and 1981 state control over markets diminished. Nonetheless development continued. This thesis calls into contention the New Institutional Economic school's premise that state involvement should be limited to protecting institutions that optimise the free market. In their approach, protection of private property is the only path to sustainable economic development. The history of white agriculture in South Africa from 1910 demonstrates that state intervention that resolves capital deficits in the context of a competitive market economy is another sustainable path.

Chapter 1: New Institutional Economics, undercapitalisation and the state's role in economic development

In New Institutional Economic (NIE) theory, institutions are the rules of the game used to encourage “normative behaviour” by making relevant economic information common knowledge. Following rules organises/regulates economic behaviour to optimise market forces.¹ According to Douglas North institutions perform three functions. They demarcate rules that specify who is participating in an interaction, the functions they are expected to perform, how the interaction will be conducted and the purpose or desired outcome.² They identify how performance will be monitored relative to goals, who is entitled to monitor the interaction and the procedures that the monitor must follow.³ Finally, institutions formalise sanctions to be imposed if an actor fails to fulfil an obligation.⁴ North argues that institutions are the foundation of economic activity, but have been overlooked by traditional neoclassical economists who assumed that they were present and functional. North and other NIE advocates claim that certain institutions produce better economic results; therefore institutional analysis is central to understanding comparative economic development.⁵

Elaborating on this perspective, Robert Hall and Charles Jones in research published in 1999 showed that contrasting institutions in different economic regions determined a labourer's output productivity.⁶ They argued that workers' productive capacity is proportional to his/her standard of

¹ A. Greif, *Institutions and the Path to the Modern Economy: Lessons from Medieval Trade*, (Cambridge University Press, 2006): 3-503.

² B. Levy, *Working with the Grain* (New York: Oxford University Press, 2014): 25-41.

³ B. Levy, *Working with the Grain*, 31.

⁴ B. Levy, *Working with the Grain*, 31.

⁵ D. North, 'Transaction Costs, Institutions and Economic Performance' *Occasional Papers*, 30 (1992): 6-30.

⁶ R. Hall, and C. Jones, 'Why Do Some Countries Produce So Much More Output Per Worker Than Others?' *Quarterly Journal of Economics*, (1999): 83-116.

physical and human capital.⁷ In other words, those with a strong financial incentive and a competent skill base are more productive. Their investigation used language as the unit of analysis to uncover the relative productivity of regions that were heavily influenced by western European institutions.⁸ It assumed that regions that adopted western languages also implemented western institutions. It found a statistically significant correlation between regions that spoke western dialects and high labour output productivity.⁹ From this Hall and Jones deduced that western institutions foster better conditions for economic development.

In 2000 Daron Acemoglu, Simon Johnson and James Robinson analysed the contemporary performance of economies that were founded on settler capitalism, as distinct from colonial capitalism.¹⁰ Settler societies adopted western institutions while colonial economies were structured to assist efficient extraction. They found a statistically significant correlation between colonies settled by western Europeans and ‘sound’ institutional infrastructure. In contrast, previously extractive colonies lacked ‘sound’ institutions. After accounting for other variables capable of influencing economic outcomes including geography, climate, religion, natural commodities and soil fertility, they concluded that the institutional component was the most important determinant of economic performance.¹¹

In 2004 Dani Rodrick, Arvind Subramanian and Francesco Trebbi undertook a similar study, with more comprehensive data and an improved econometric methodology. Three variables were included; “geography” that was measured by identifying a region’s distance from the equator,

⁷ R. Hall and C. Jones, ‘Why Do Some Countries Produce So much More than Others?’, 94.

⁸ R. Hall and C. Jones, ‘Why Do Some Countries Produce So much More than Others?’, 94.

⁹ R. Hall and C. Jones, ‘Why Do Some Countries Produce So much More than Others?’, 94.

¹⁰ D. Acemoglu, S. Johnson and J. Robinson, ‘The Colonial Origins of Comparative Development: An Empirical Investigation’, *Working Paper*, (2000): 1-43.

¹¹ D. Acemoglu, S. Johnson and J. Robinson, ‘The Colonial Origins of comparative Development, 4.

“integration” (the extent to which a region participated in international trade) quantified by trade flow data and “institutional quality” compiled from public surveys.¹² Their conclusion was in line with previous studies: institutions had the most telling effect of all variables on a region’s economic performance. Economies based on western institutions performed better.

These scholars all upheld the tenets of the NIE framework. Western institutions were better suited to economic development because of their control over the organisations that governed society.¹³ An organisation comprises a group of individuals that work collectively to pursue shared interests.¹⁴ Organisations are defined according to their area of influence; i.e.: modern governments are political organisations, universities educational and firms economic.¹⁵ The NIE approach to institutions emphasises the importance of constraints that regulate the behaviour of political organisations.¹⁶

While governments are considered the most efficient body enforcing actor’s (citizens) compliance, they must also be subject to constraints so that their operations are equally conducive to economic growth.¹⁷ Western organisations stand out because they respect institutions that supersede their authority to prevent market distortions that cause inefficient markets. North demonstrated the importance of this from an analysis of James Madison’s motivation behind the inauguration of the constitution of the United States of America (USA).¹⁸ Madison noted that if organisations in

¹² D. Rodrik, Arvind Subramanian and F. Trebbi, ‘Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development’, *Journal of Economic Growth*, 9(2) (2004): 131-165.

¹³ D. North, ‘Economic Performance Through Time’, *The American Economic Review*, 84(3) (1994): 359-368.

¹⁴ C. Manzavinos, D. North and S. Shariq, ‘Learning, Institutions, and Economic Performance’, *Perspective on Politics*, 2(1) (2004): 77.

¹⁵ C. Manzavinos, D. North and S. Shariq, ‘Learning, Institutions, and Economic Performance’, 79.

¹⁶ C. Manzavinos, D. North and S. Shariq, ‘Learning, Institutions, and Economic Performance’, 79.

¹⁷ D. North, ‘Economic Performance Through Time’, 361.

¹⁸ D. North, ‘Structure and Performance: The Task of Economic History’, *Journal of Economic Literature*, 16(3) (1978): 963-978.

control of institutions lack motivation to serve the public, they are more likely to extract public resources.¹⁹ If political hegemony serves as an apparatus to promote accumulation for small, powerful factions at the expense of the majority (predation), government effectiveness as the guardian of public legislation lacks substance.²⁰ The net effect is predation and an uncompetitive, anti-capitalist economy. Elites seize monopoly power over a comparative advantage to inhibit competition and secure market share.²¹ Organisations accumulate. Institutions that distort market forces are a disincentive for both organisations and actors to make productivity enhancing investments because the recipient of accumulation is predetermined irrespective of their performance.²² The solution according to North is to define rules that even the most powerful organisation cannot infiltrate. Their purpose is to render abuse of political hegemony unrewarding and the benefits from upholding the integrity of legislation that protect market principles worth their while.²³ If an organisation has an interest in economic growth it will effectively enforce constraints on actors who cause market distortions.²⁴

In NIE theory, organisations and actors respond to institutions rationally. Rational choice theory assumes that an individual reacts to institutions according to utility functions.²⁵ Aware of self-interests they evaluate the outcome of an action within the confines of local institutions. People choose the most logical behaviour to maximise utility without breaking rules. NIE theory assumes

¹⁹ D. North, 'Structure and Performance', 967.

²⁰ D. North, 'Structure and Performance', 968.

²¹ D. North, 'Structure and Performance', 967.

²² D. North, 'Structure and Performance', 967.

²³ D. North, 'Structure and Performance', 968.

²⁴ D. Acemoglu and J. Robinson, 'Political Losers as a Barrier to Economic Development', *The American Economic Review*, 90(2) (2000): 126-130.

²⁵ T. Penard, 'Game Theory and Institutions' in E. Brousseau and J. M. Glachant (eds.) *New Institutional Economics: A Guide Book*, (Cambridge University Press, 2008): 158-180; D. Ross, 'Evolutionary Game Theory and the Normative theory of Institutional Design: Binmore and Behavioural Economics', *Politics Philosophy and Economics*, 5 (2006): 51-79; R. Bates, 'Rational Choice and the Problem of Institutions', *Working Paper*, (1996): 1-31; A. Greif and C. Kingston, 'Institutions: Rules or Equilibria' in N. Schofield and G. Caballero (eds.) *Political Economic of Institutions, Democracy and Voting* (Springer, 2011): 14-43.

that rational organisations will devise public institutions to punish actors that distort market forces to spur development via the neoclassical Schumpeterian growth model.²⁶ Schumpeter posited that the market was the most efficient delegator of scarce resources, since it was the source of perpetual competition. Capitalists are forced to improve their relative productivity and quality to retain market share or overtake their rivals. When innovation/competitiveness is a requisite for accumulation actors manage their resources efficiently.²⁷ Sustainable economic development will follow. Therefore the duty of a state looking to spur development is to uphold institutions that optimise free market principles.

Historically, organisations' that showed interest in protecting private property substantiate this theory, according to Acemoglu, Johnson and Robinson.²⁸ Private property eliminates the potential of expropriation by elites and endows owners' exclusive rights to the returns derived. Once private property is secure the market will function efficiently and motivate actors to use their property productively.²⁹ Driven by the rewards of improved productivity, actors innovate, promote creative destruction, capitalise their property and take necessary steps to improve their skill base which spurs competitive economic growth on a national scale.³⁰ This approach relies on evidence of organisational interest in protecting private property in Britain and later in other western European countries as proof that secure private property is the key to economic development.

²⁶ D. North, 'Structure and Performance', 968.

²⁷ D. Acemoglu, and D. Cao, 'Innovation by New Entrants and Incumbents', *Journal of Economic Theory*, 157 (2015): 255-294.

²⁸ D. Acemoglu, S. Johnson and J. Robinson, 'The Rise of Europe: Atlantic Trade, Institutional Change and Economic Growth', *Working Paper*, (4269) (2002): 1-56.

²⁹ B. de Long and A. Shleifer, 'Princes and Merchants: European City Growth Before the Industrial Revolution', *Journal of Law and Economics*, (XXXVI) (1993): 671-702.

³⁰ D. Acemoglu and S. Johnson, Acemoglu, D., and Robinson, J. 'Unbundling Institutions', *Working Paper*, (2003): 1-39.

A common feature shared by all western European superpowers including Britain, Spain and Portugal by the sixteenth century was that they participated in intercontinental Atlantic trade.³¹ What set Britain aside were the beneficiaries of foreign trade.³² Profits were directed at merchant bodies, while monarchies in Spain and Portugal retained their monopoly on revenue.³³ Merchant accumulation coincided with the formalisation of private property in Britain from the sixteenth century.³⁴ Acemoglu, Johnson and Robinson concluded that this reflected merchant's intent to protect their wealth from the predatory elite by using their ever growing political stature that was fuelled by their perpetually growing wealth.³⁵ They also argue that Britain was the first to implement this capitalist institution effectively enabling it to dominate an era that defines modern day capitalism; i.e. the Industrial Revolution.³⁶

After 1790, western European countries began to follow suit.³⁷ European nations forcefully reformed their institutional infrastructure from the “*ancien regime*” to a system that did not limit accumulation to the elite.³⁸ Ownership of private property became a societal right. Acemoglu, Johnson and Robinson found that all affected regions experienced an upsurge in the rate of urbanisation after 1850.³⁹ Thus they used urbanisation as a measure of prosperity, since urbanization was a product of improved agricultural output productivity.⁴⁰ Furthermore, rapid

³¹ D. Acemoglu, S. Johnson and J. Robinson, ‘The Rise of Europe’, 3.

³² D. Acemoglu, S. Johnson and J. Robinson, ‘The Rise of Europe’, 3.

³³ D. Acemoglu, S. Johnson and J. Robinson, ‘The Rise of Europe’, 4.

³⁴ D. Acemoglu, S. Johnson and J. Robinson, ‘The Rise of Europe’, 4.

³⁵ D. Acemoglu, S. Johnson and J. Robinson, ‘The Rise of Europe’, 5.

³⁶ D. Acemoglu, S. Johnson and J. Robinson, ‘The Rise of Europe’, 5.

³⁷ D. Acemoglu, J. Robinson, S. Johnson, and D. Cantoni, ‘The Consequences of Radical Reform: The French Revolution’, *National Bureau of Economic Research*, Working Paper 14831 (2009): 1-46.

³⁸ D. Acemoglu, S. Johnson, D. Cantoni and J. Robinson, ‘The Consequences of Radical Reform’, 5.

³⁹ D. Acemoglu, S. Johnson, D. Cantoni and J. Robinson, ‘The Consequences of Radical Reform’, 34.

⁴⁰ D. Acemoglu, S. Johnson, D. Cantoni and J. Robinson, ‘The Consequences of Radical Reform’, 17.

urbanisation was closely related to a high GDP per capita.⁴¹ More tellingly, the portion of Germany that remained subservient to oligarchies experienced a slower rate of urbanisation than parts that protected private property.⁴² In other words, the high standard with which private property was implemented and policed endorsed equality of opportunity and incentivised rational actors to utilise resources efficiently. Such institutional infrastructure was passed onto settler societies including America, Canada, Australia and New Zealand. Acemoglu, Johnson and Robinson believe that this model is also relevant to the developing world.⁴³ They are adamant that if institutions motivate an organisation to protect private property actors will build successful modern economies irrespective of location.⁴⁴ They use Botswana to make their case in Africa.

Acemoglu, Johnson and Robinson point out that prospects for Botswana's economy were bleak immediately after it was granted independence from Britain. Infrastructure was non-existent; there were only 12 paved roads.⁴⁵ There was an extraordinary skills deficit. In a population of just over 600 000 people in 1966, only 22 were educated at a tertiary level and about 100 had completed high school.⁴⁶ Competitive economic development seemed a farfetched ideal, but Botswana achieved exactly that. Three decades subsequent to independence Botswana's economy as measured by its gross national product (GNP) per capita grew faster than any other in the world.⁴⁷ From a negative figure in 1966, domestic savings accounted for 20 percent of the country's gross

⁴¹ D. Acemoglu, S. Johnson, and J. Robinson, 'Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution', *The Quarterly Journal of Economics*, 117(4) (2002): 1231-1294.

⁴² D. Acemoglu, S. Johnson, D. Cantoni and J. Robinson, 'The Consequences of Radical Reform', 34.

⁴³ D. Acemoglu, S. Johnson and J. Robinson, 'An African Success Story: Botswana', *Working Paper*, (2001): 1-39.

⁴⁴ D. Acemoglu, S. Johnson and J. Robinson, 'An African Success Story', 2.

⁴⁵ D. Acemoglu, S. Johnson and J. Robinson, 'An African Success Story', 2.

⁴⁶ D. Acemoglu, S. Johnson and J. Robinson, 'An African Success Story', 2.

⁴⁷ C. Harvey and S. Lewis, *Policy Choice and Development Performance in Botswana*, (Macmillan, 1990): 9-25.

domestic product per capita by the end of the following decade.⁴⁸ Contrary to other sub-Saharan African countries, Botswana's foreign debt amounted to only four percent of its annual exports by mid-1980.⁴⁹ Investment in infrastructural upgrades kept pace with Thailand and Malaysia, two top performing Asian nations which transformed transport networks, as well as health and education facilities.⁵⁰ Primary school admission increased by 80 percent with females constituting more than half the demographic composition between 1966 and 1995.⁵¹

Neglecting the windfall of diamond discovery in the early 1970s, the absence of a private sector, perpetually growing inequality and widespread HIV, Acemoglu, Johnson and Robinson present Botswana's economic performance as Africa's exception. They identify the key element as the willingness of leaders to establish inclusive institutions after independence.⁵² According to Acemoglu, Johnson and Robinson "good policies were chosen in Botswana because good institutions, which we refer to as *institutions of private property*, were in place... Such institutions protect the property rights of actual and potential investors, provide political stability, and ensure that political elites are constrained by the political system and the participation of a broad cross section of society".⁵³ From this point of view, sub-Saharan countries unable to replicate Botswana's organisational structure are doomed to perpetual underdevelopment and poverty.

⁴⁸ K. Good, 'Interpreting the Exceptionality of Botswana', *The Journal of Modern African Studies*, 30(1) (1992): 69-95.

⁴⁹ K. Good, 'Interpreting the Exceptionality of Botswana', 74.

⁵⁰ C. Leith, 'Why Botswana Prospered', *Paper Presented at Canadian Economics Association Thirty-Four Annual Meetings University of British Columbia*, (2000): 1-28.

⁵¹ C. Leith, 'Why Botswana Prospered', 6.

⁵² D. Acemoglu, and J. Robinson, *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, (Crown Publishing group, 2012): 427-443.

⁵³ D. Acemoglu, S. Johnson and J. Robinson, 'An African Success Story', 1-2.

Avner Greif, a liberal institutional thinker and inter-disciplinary institutional analyst is interested in the NIE framework.⁵⁴ Greif does not dispute that institutions are exogenous man-made structures that regulate behaviour or that secure property rights are key to optimising the allocation of resources.⁵⁵ However Greif believes that their approach to examining institutions in relation to comparative economic development is incomplete.⁵⁶ In NIE theory rules are the unit of analysis used to evaluate economic performance.⁵⁷ NIE advocates correlate rules and political organisations with outcomes.⁵⁸ Acemoglu, Johnson and Robinson parallel secure property rights and organisational structure with sustainable economic development.⁵⁹ The NIE approach incorporates historical context, but limits it to examining the interplay between rules and political organisations as means to distinguish successful economies from underperformers.⁶⁰ In other words, their top-down economic analysis looks at institutions and political organisations independent of society.⁶¹

Greif presents a “comparative and historical approach to institutions”.⁶² This methodology combines macro (top-down) and micro (bottom-up) institutional analytic techniques.⁶³ Greif’s integrative approach shows that societal specific context influences economic outcomes and that markets can function efficiently in the absence of a westernised central government.⁶⁴ Greif

⁵⁴ A. Greif, *Institutions and the Path to the Modern Economy*, 37.

⁵⁵ A. Greif, *Institutions and the Path to the Modern Economy*, 37.

⁵⁶ A. Greif, *Institutions and the Path to the Modern Economy*, 37.

⁵⁷ A. Greif, *Institutions and the Path to the Modern Economy*, 382.

⁵⁸ A. Greif, *Institutions and the Path to the Modern Economy*, 39.

⁵⁹ A. Greif, *Institutions and the Path to the Modern Economy*, 6.

⁶⁰ A. Greif, *Institutions and the Path to the Modern Economy*, 382-383.

⁶¹ A. Greif, *Institutions and the Path to the Modern Economy*, 382-383.

⁶² A. Greif, *Institutions and the Path to the Modern Economy*, 39.

⁶³ A. Greif, *Institutions and the Path to the Modern Economy*, 41.

⁶⁴ A. Greif, *Institutions and the Path to the Modern Economy*, 39.

compares social organisation and the strength of political organisations in China and Europe between the tenth and mid-eighteenth centuries.⁶⁵

The Han dynasty overcame the Qin dynasty in 206 BCE and continued to control China for four centuries.⁶⁶ Confucianism underlined its ideology.⁶⁷ In Confucianism family/kinship organised society both geographically and morally.⁶⁸ People of the same genealogy lived in close knit clans and moral obligations to kin trumped legal bindings that were implemented during the Qin dynasty.⁶⁹ Between 1685 and 1845 the percentage of tax paid to China's central government decreased from ten percent to two percent and the number of public servants remained constant despite population growth.⁷⁰ China's central government grew weaker.

In contrast, large kinships declined in Europe from the ninth century and were gradually replaced by the nuclear family.⁷¹ Pierre Guichard and Jean-Pierre Cuvillier argue that the emergence of formal laws indicate that kin had little control over their affiliates' behaviour.⁷² For instance, in tenth century England, men with an impending court date were legally obligated to join groups that monitored their movements, to ensure their attendance.⁷³ Further, kin based societies comprise communities of the same genealogy.⁷⁴ A quantitative study by Zvi Razi showed that biologically related kin were just as likely to be in each other's company as non-kin members.⁷⁵

⁶⁵ A. Greif and G. Tabellini, 'Cultural and Institutional Bifurcation: China and Europe Compared', *The American Economic Review*, 100(2) (2010): 135-140.

⁶⁶ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', [Unpublished] (2012): 59-103.

⁶⁷ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 26.

⁶⁸ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 26.

⁶⁹ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 26.

⁷⁰ A. Greif, 'The Clan and the City: Sustaining Co-operation in China and Europe', *Boundary of the Firm 2013-2014 Lecture Series* [Online] Available at: <https://www.youtube.com/watch?v=ZlihEnv8Fuw> [Accessed 7 November 2015].

⁷¹ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 27.

⁷² P. Guichard, and J. P. Cuvillier, 'Barbarian Europe' in A. Burguiere (ed.) *A History of the Family* (Cambridge: Polity Press, 1996): 318-378.

⁷³ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 27.

⁷⁴ R. Schofield, *The Peasant and Community in Medieval England, 1200-1500*, (New York: MacMillan, 2003): 83.

⁷⁵ Z. Razi, 'The Myth of the Immutable English Family', *Past and Present*, 1(140) (1993): 3-44.

Peter Laslette found that in a 100 parishes in England between the sixteenth and nineteenth centuries, only ten percent of households comprised kin.⁷⁶ As kinships declined, strong states that enforced formal laws emerged across Europe.⁷⁷ Britain's ratio of tax to GDP increased from six percent to thirteen percent and the number of public servants kept pace with population growth.⁷⁸ As social organisation changed the state's authority grew in strength and scope.

Political organisations in preindustrial China and Western Europe differed.⁷⁹ NIE theory held that markets in Europe should function more efficiently as incentivised western organisations optimise market efficiency. North conjectured that the historical efficiency of European markets distinguished its economic performance from China causing the "great divergence" from 1780.⁸⁰ However, North's evidence has been challenged.

Huang, Shuie and Keller presented studies that compared the relative efficiency of markets in preindustrial China with Europe that cast doubt on North's conjecture.⁸¹ Bounded labourers are less productive as the marginal cost of disorganised labour allocation is lower.⁸² Huang found that bounded labour was trivial in most of China relative to Europe before 1780 with the exception of Huizhou and Anhui.⁸³ There were fewer constraints in Chinese labour markets.⁸⁴ Unlike Europe, China imposed few barriers to migration.⁸⁵ Interregional Chinese languages were more uniform,

⁷⁶ P. Laslette, 'The Size and Structure of the Household in England Over Three Centuries', *Population Studies*, 23(3) (1969): 199-223.

⁷⁷ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 28.

⁷⁸ A. Greif, 'The Clan and the City: Sustaining Co-operation in China and Europe', *Boundary of the Firm 2013-2014 Lecture Series* [Online] Available at: <https://www.youtube.com/watch?v=ZlihEnv8Fuw> [Accessed 7 November 2015].

⁷⁹ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 26.

⁸⁰ K. Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern Economy* (Princeton University Press, 2000): 69-107.

⁸¹ C. Shuie, and W. Keller, 'Markets in China and Europe on the Eve of the Industrial Revolution', *American Economic Review*, 97(4) (2007): 1189-1212.

⁸² K. Pomeranz, *The Great Divergence*, 82.

⁸³ P. Huang, *The Peasant Economy and Social Change in North China*, (Stanford: Stanford University Press, 1985): 85-105.

⁸⁴ K. Pomeranz, *The Great Divergence*, 82.

⁸⁵ K. Pomeranz, *The Great Divergence*, 83.

lessening barriers to societal integration. Cumulatively these factors fostered efficient, functional labour markets.⁸⁶

Carol Shuie and Wolfgang Keller compared Chinese spatial market integration (SPI) with Europe.⁸⁷ SPI measures price trends of a commodity in separate markets as a proxy for market efficiency.⁸⁸ In neoclassical economics, markets are considered efficient if surplus reserves and low prices in one region (region A) push traders to permeate other markets (region B) with lower reserves to prop up commodity prices. Increased supply in region B is expected to deflate market prices resulting in relatively uniform prices between market A and B. Integrated markets (free trade) perpetuate competition and encourage efficient production. Thus Shuie and Keller compare grain prices in China and Europe between the fifteenth and nineteenth century assuming that uniform prices reflected efficient markets. Grain price uniformity throughout China paralleled Europe.⁸⁹ Chinese commodity markets were just as efficient.⁹⁰

Following Huang, Shuie, Keller and other empirical investigations Greif accepts that market efficiency in preindustrial China matched Europe.⁹¹ Greif points out that similar markets derived from dissimilar organisational structures. Organised by genealogy, clans used personal affiliations to motivate co-operation based on moral obligations to kin.⁹² Each clan maintained order without a central government enforcing constraints.⁹³ Greif attributes this to social organisation in China that enabled informal institutions to constrain undesirable behaviour. Greif's approach accounts

⁸⁶ K. Pomeranz, *The Great Divergence*, 83.

⁸⁷ C. Shuie, and W. Keller, 'Markets in China and Europe on the Eve of the Industrial Revolution', 1189.

⁸⁸ K. McNew, 'Spatial Market Integration: Definition, Theory, and Evidence', *Agricultural and Resource Economics Review*, (1996): 9-11.

⁸⁹ C. Shuie, and W. Keller, 'Markets in China and Europe on the Eve of the Industrial Revolution', 1191.

⁹⁰ C. Shuie, and W. Keller, 'Markets in China and Europe on the Eve of the Industrial Revolution', 1191.

⁹¹ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 50-53.

⁹² A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 3.

⁹³ A. Greif and G. Tabellini, 'The Clan and the City: Sustaining Co-operation in China and Europe', 3.

for cultural factors that determine the balance of power in society, an aspect that NIE advocates neglect. Institutions, like private property, enhance the allocative efficiency of resources and are essential for capitalist growth. Identifying what motivates actors to respect property rights is to understand cultural dynamics and belief systems, argues Greif.

Greif's approach to institutions differs, but his notion of organisations and actors complement NIE theory. Whether rules are implemented formally or informally successful economies occur where organisations exploit belief systems to incentivise actors to allocate resources efficiently. This perspective relies strongly on the assumption of rational actors. However, there is more to the notion of actors than either allow.

An empirical study by Bowles and Gintis showed that historical disadvantages affect economic outcomes of actors living in the same institutional environment.⁹⁴ Children of well-off parents tended to retain a hold on wealth accumulation relative to those from modest or impoverished backgrounds, even if the cognitive capacity of the wealthier was of a lower order.⁹⁵ In other words, highly intelligent or industrious attitudes did not compensate for a lack of skills and resources. Botswana's success reinforces Bowles and Ginti's argument. The beneficiaries of private property were anything but deprived. Wealthy chiefs who were experienced cattle farmers were given formal ownership rights over beef herds.⁹⁶ Botswana's beef industry flourished and chiefs accumulated.⁹⁷ Had beneficiaries been impoverished migrant workers that were previously forced to make a living on South African mines, the sector's performance would have been markedly different.⁹⁸ The same was true for the mineral sector. The state, which boasted a pool

⁹⁴ S. Bowles and H. Gintis, 'The Inheritance of Inequality', *Journal of Economic Perspectives*, 16(3) (2002): 3-30.

⁹⁵ S. Bowles and H. Gintis, 'The Inheritance of Inequality', 3.

⁹⁶ K. Good, 'Interpreting the Exceptionality of Botswana', 74.

⁹⁷ C. Leith, 'Why Botswana Prospered', 6.

⁹⁸ K. Good, 'Interpreting the Exceptionality of Botswana', 79.

of well-educated and internationally connected individuals that frequently consulted with experts claimed ownership of diamond rich regions, using the revenue generated appropriately.⁹⁹

NIE advocates fail to recognise that historical deprivation limit actors' capacity to respond to market forces. Where free markets do not resolve capital deficits state intervention can be an effective substitute. The Japanese and South Korean 'growth miracles' are well known examples.

In Japan leaders of four feudal districts Satsuma, Choshu, Tosa and Hizen worked collectively to overthrow Tokugawa (an oligarchical leader) and establish a central government by 1867.¹⁰⁰ The Japanese economy that was slowly integrated into international trade toward the end of the Tokugawa era underperformed due to dysfunctional markets.¹⁰¹ In 1869 the government took over property held by feudal landlords.¹⁰² Broad reform followed. The state passed legislation that eradicated inequality of opportunity. The right for all to own property was protected and wrongful expropriation deemed illegal.¹⁰³ The key to Japanese progress however was the states' ability to build capacity among cheap surplus female labour and integrate intermediate technologies.¹⁰⁴

Property rights only featured in South Korea after 1945.¹⁰⁵ In 1919 Japan colonised South Korea.¹⁰⁶ The Japanese Oriental Development Company captured 156 463 acres of productive land and 24 mines and industrial plants.¹⁰⁷ Koreans were the tenants and the Japanese the landlords.¹⁰⁸ Koreans gained independence in 1945 after the Japanese surrendered to the USA,

⁹⁹ D. Acemoglu and J. Robinson, *Why Nations Fail*, 109.

¹⁰⁰ G. Allen, *A Short Economic History of Modern Japan, 1867-1937* (Phycology Press, 2003): 5-30.

¹⁰¹ G. Allen, *A Short Economic History of Modern Japan*, 11.

¹⁰² G. Allen, *A Short Economic History of Modern Japan*, 26.

¹⁰³ G. Allen, *A Short Economic History of Modern Japan*, 27.

¹⁰⁴ A. Gordon, 'Review- Women and the Economic Miracle: Gender and Work in Post-War Japan', *Review*, 20(3) (1995): 742-745.

¹⁰⁵ Y. Jeon and Y. Kim, 'Land Reform Redistribution, and Agricultural Production in Korea', *Economic Development and Cultural Change*, 48(2) (2000): 253-268.

¹⁰⁶ Y. Jeon and Y. Kim, 'Land Reform, Income Redistribution and Agricultural Production in Korea', 256.

¹⁰⁷ C. Mitchell, 'Land Reform in South Korea', *Pacific Affairs*, 22(2) (1949): 144-154.

¹⁰⁸ C. Mitchell, 'Land Reform in South Korea', 147.

which brought an end to World War Two (WWII).¹⁰⁹ The USA backed military government expropriated all Japanese occupied land.¹¹⁰ Land passed to the New Korea Company, a state owned entity, until the National Land Administration (NLA) took over in 1948.¹¹¹ The NLA facilitated land sales, which commenced immediately.¹¹² South Korean tenants purchased land via mortgages advanced by the government.¹¹³ After the transaction land owners were given a title deed. The NLA also enforced a policy that prevented creditors from liquidating land used as collateral if the owner could not meet loan obligations while they were paying off their mortgage.¹¹⁴ Property was only liquidated if owners did not meet their mortgage payments to the government.¹¹⁵ Again, however, support from the banking sector and the state went beyond private property.

The Japanese and South Korean states were compelled to extend intervention beyond protecting private property. Years of conflict had resulted in capital and skill deficits. New entrants into agricultural and industrial enterprises were uncompetitive. In both instances, the state took an unconventional capitalist approach to development, identified by Chalmers Johnson as the developmental state.¹¹⁶

To be considered developmental, a state must intervene in the market economy in order to regulate investment more effectively than the free market.¹¹⁷ This is usually done through legislative or

¹⁰⁹ C. Mitchell, 'Land Reform in South Korea', 147.

¹¹⁰ C. Mitchell, 'Land Reform in South Korea', 147.

¹¹¹ C. Mitchell, 'Land Reform in South Korea', 147.

¹¹² C. Mitchell, 'Land Reform in South Korea', 148.

¹¹³ C. Mitchell, 'Land Reform in South Korea', 148.

¹¹⁴ C. Mitchell, 'Land Reform in South Korea', 148.

¹¹⁵ C. Mitchell, 'Land Reform in South Korea', 148.

¹¹⁶ C. Johnson, 'The Developmental State: Odyssey of a Concept' in Woo-Cummings and Meredith (eds.) *The Developmental State* (Cornell University Press, 1999): 32-60.

¹¹⁷ Z. Onis, 'The Logic of the Developmental State', *Comparative Politics*, 24(1) (1991): 109-126.; A. Amsden, 'Diffusion of Development: The Late Industrialising Model and Greater East Asia', *American Economic Review*, 81(2) (1991):282-286.; P. Evans, 'Predatory, Developmental, and Other Apparatuses: A Comparative Political

administrative institutions that create an economic environment conducive to private investment for economic expansion.¹¹⁸ Moreover, state intervention is directed at rapid industrialisation in a bid to catch up with industrialised countries.¹¹⁹ Developmental states are often driven by an authoritarian leader; capitalist growth is promoted by devising “market-conforming methods” that stimulate competitive production.¹²⁰ The state identifies and supports sectors that show high growth potential and encourage investments that enhance productivity.¹²¹ State support is usually in the form of massive subsidy for research and development, and skills training and legislation to achieve labour discipline. A few decades’ into the Japanese and South Korean developmental regimes both were considered major players in the global market.¹²² From 1956 to 1970 Japan’s realised economic growth rate remained 35 percent higher than the expected rate.¹²³ South Korea’s average growth rate was sustained at 8 percent between 1960 and 1990, surpassing 10 percent in good years.¹²⁴

The NIE approach to economic development has contributed to institutional thinking. However, rigid subscription to neoclassical economics in relation to economic growth is a problem for policy prescription, particularly in regions beset by capital and skill deficits. While markets allocate resources efficiently, optimising free market forces will contribute little to development if actors

Economy Perspective on the Third World State’, *Sociological Forum*, 4(4) (1989): 561-587.; C. Johnson, *MITI and the Japanese Miracle* (Stanford: University Press, 1982): 4-33.; A. Kohli, *State-Directed Development: Political Power and Industrialization in the Global Periphery* (Cambridge: Cambridge University Press, 1995): 169-221.

¹¹⁸ Z. Onis, ‘The Logic of the Developmental State’, 111.

¹¹⁹ Z. Onis, ‘The Logic of the Developmental State’, 111.

¹²⁰ C. Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975*, 307.

¹²¹ C. Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975*, 307.

¹²² C. Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975*, 307.

¹²³ C. Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975*, 231.

¹²⁴ K. Fields, *Enterprises and the State in Korea and Taiwan* (London, Cornell University Press: 1995): 3-26.

cannot access resources. As in Japan and South Korea, empirical evidence of white agricultural development in South Africa substantiates this.

This thesis aims to assess the usefulness of the NIE approach in the South African context dominated by a highly capital intensive white agricultural sector governed by western institutions of private property. The thesis charts the history of white agriculture from the formation of Union in 1910 to the demise of Apartheid in the late 1980s. It examines the role played by the state in the development of white agriculture in order to ascertain how far the sector relied on private property and the market and how far it depended on other forms of state intervention in these formative years. It demonstrates that the majority of white farmers were unable to maximise utility in an economy with secure property rights without massive state support in multiple areas.

Chapter two demonstrates that deficits in financial and human capital between 1910 and 1936 undermined the allocative efficiency of the free market. Chapter three examines the period 1937 to 1980 when the state took an interventionist approach. The government established institutions that addressed capital constraints and spurred capitalist development. Chapter four analyses the deciduous fruit and wheat sectors to provide a more detailed account of state intervention in the farming sector. Chapter five concludes the thesis by revisiting the implications of the NIE approach to economic development in light of these empirical investigations.

Chapter 2: Private Property, Capital Deficits and Undeveloped Agriculture in South Africa, 1910-1936

Commercial agricultural development only started to pick up noticeable speed in South Africa after 1940, even though inclusive institutions predominated from the 1920s. South African farmers were not forward-looking and uncompetitive in the global market place. Constraints included limited access to suitable sources of credit, little insight into bookkeeping and understanding of private credit markets, disorganisation among producers in both input and output markets and insufficient exposure to best practice farming techniques and technology. This anaemic development was a consequence of undercapitalisation.¹

In the early nineteenth century in the Cape, few white farmers owned land. The main form of tenure was *leeningsplaatsen* (loan farms), a system that granted farmers land in return for a trivial fee paid annually to the colonial government.² The system was favoured because fees were inexpensive relative to ownership. In 1813 the governor of the Cape Sir John Cradock inflated fees exponentially.³ *Leeningsplaatsen* lost its appeal. Dissatisfied farmers moved inland to evade fees. Their response was effective for a while but inland governments followed suit, albeit decades later. In 1858 the government of the Transvaal assumed ownership of property that had no formal titleholder, implementing a quitrent system similar to the Cape.⁴ Farmers had three options; pay excessive annual rates, roam (a nomadic form of tenure where farmer's utilised unoccupied land until they were forced to relocate when it was purchased or available resources exhausted) or

¹ W. Beinart, P. Delius, S. Trapido, *Putting a Plough to the Ground: Accumulation and Dispossession in Rural South Africa* (Ravan Press, 1986); Delius, P. and Beinart, W. 'The Historical Context and Legacy of the Natives Land Act of 1913', *Journal of Southern African Studies*, 40(4) (2014): 667–688.

² F. Wilson, 'Farming, 1866-1966', in M. Wilson and L. Thomson (eds.) *The Oxford History of South Africa* (Oxford, At the Clarendon Press: 1975): 104-171.

³ F. Wilson, 'Farming, 1866-1966', 106.

⁴ F. Wilson, 'Farming, 1866-1966', 106.

purchase land.⁵ Roaming was unsustainable¹ due to the scarcity of fertile land in South Africa.⁶ Devoid of an alternative, farmers came to see that ownership might be more feasible. A survey completed after Union in 1918 showed that most units were privately owned.⁷ 64 percent of farming units were privately owned and occupied by the titleholder, 27 percent privately owned and rented out to tenants and 9 percent occupied on a share system.⁸ Farmer's willingness to purchase land suggests that the unified state after 1910 was a capable guardian of private property for white settlers.

This shift is easily explained. Private property became prominent in white agriculture at a turning point in South Africa's history. Gold was discovered in 1886.⁹ The mineral revolution spurred relocation of labour to urban centres on the perimeters of mining hubs, recasting the economic orientation of a large portion of the South African population that traditionally practiced subsistence farming or minor commercial production.¹⁰ Agricultural commercialisation became a priority as fewer people participated in the sector, while demand for staple produce multiplied due to rapid urbanisation.¹¹

In 1910 the four independently governed states, the Boer republics of the Transvaal and Orange Free State and the British colonial Cape Province and Natal came together to form the Union of South Africa.¹² Like other British dominion settlements by the twentieth century, the Union sought to distinguish itself from a colonial territory to a country by building an institutional foundation

⁵ F. Wilson, 'Farming, 1866-1966', 106.

⁶ F. Wilson, 'Farming, 1866-1966', 106.

⁷ UCT Government Publications: *Handbook of Agricultural Statistics 1904-1950*, 8.

⁸ UCT Government Publications: *Handbook of Agricultural Statistics 1904-1950*, 8.

⁹ UCT Government Publications: *Land Bank Annual Report, 1977*, 12.

¹⁰ UCT Government Publications: *Land Bank Annual Report, 1977*, 14.

¹¹ UCT Government Publications, *Land Bank Annual Report, 1977*, 14.

¹² H. Wolpe, 'Capitalism and Cheap Labour in South Africa from Segregation to Apartheid', *Economy and Society*, 1(4) (1972): 425-456.

that instilled common values and aligned interests of settler descendent Union citizens.¹³ Bill Freund argued that this post-Union orientation was the government's attempt to create a "hegemonic order" with nationalist underpinnings.¹⁴ However the economy was hampered by uneven growth.¹⁵ The unprecedented development of gold mining from the late nineteenth century was not matched by agriculture or manufacturing, which were relatively poor and undeveloped. According to Freund, reconstituting the distribution of wealth and the pursuance of a more "generalised prosperity" in the South African economy was a vital requisite for the attainment of a nationalist, settler hegemony.¹⁶ The state founded institutions to make their vision a reality.

Corresponding to the change in political motive, the state encouraged commercial agriculture. The Central Land Bank of South Africa that was founded in 1912 was the first institution established by the state to support farmers beyond protecting private property. The Land Bank was the only body that could validate advancements made to individual farmers and agricultural co-operatives; it offered low interest rates relative to commercial banks; it performed the role of inspector to ensure advancements were used appropriately; it kept track of farmer's loan obligations, enforcing sanctions if the terms of loans could not be met and incentivised debtors to pursue the most viable means of production, placing particular weight on the value of production and marketing co-operative societies.¹⁷ The goal of the bank was; "to assist development by helping a farmer through his initial struggle in bringing the land under cultivation, and eventually to place him in a position

¹³ B. Freund, 'South Africa: The Union Years, Political and Economic Foundations 1910-1948', in R. Ross, A. Mager and B. Nassen (eds.) *Cambridge History of South Africa*, (Cambridge, Cambridge University Press, 2011): 211-253.

¹⁴ B. Freund, 'South Africa: the Union Years', 211.

¹⁵ B. Freund, 'South Africa: the Union Years', 211.

¹⁶ B. Freund, 'South Africa: the Union Years', 211.

¹⁷ UCT Government Publications: *Land Bank Annual Report 1913*, 5.

to carry on with his own resources”.¹⁸ The state recognized that farmers were incapable of making productive use of their private property because they were undercapitalised.

The extent and consequences of undercapitalisation are demonstrated by the challenges of stock disease infestations, undeveloped transport infrastructure and absence of irrigation schemes that individual farmers could not hope to overcome. Bank inspections showed that of the 41 regions that practiced cattle and sheep farming in 1913, 63 percent were plagued by potentially fatal stock disease.¹⁹ The diseases included east coast fever, krimp siekte, dikkop siekte, gallam siekte, anthrax, spons siekte, wire worm and blue tongue.²⁰ The capacity of farmers to curb the spread of stock disease is a question of knowledge and capital availability. Funds were needed for research facilities to discover cures. Sections of farms needed to be cordoned off to isolate diseased animals. Farmers were also obliged to construct dipping tanks and finance the chemicals used to clean or disinfect stock.²¹ Farmer’s incapacity to deal with diseased animals hampered productivity and constrained capital accumulation that was necessary for these farm upgrades. Undercapitalisation also prevented development as access to adequate capital was imperative for mechanisation and transport infrastructure.

Well-developed transport infrastructure was of central importance to commercial agriculture after Union. Convenient access to produce depots would diminish farmers’ marketing costs, allow them to reach markets promptly when prices were favourable and ensure maximising profit for perishable commodities.²² The predominant forms of transport available to undercapitalised farmers in 1913 were horse drawn wagons and rudimentary vehicles. Without preservation

¹⁸ UCT Government Publications: *Land Bank Annual Report 1914*, 26.

¹⁹ UCT Government Publications: *Land Bank Annual Report 1977*, 12-25.

²⁰ UCT Government Publications: *Land Bank Annual Report 1977*, 12-25.

²¹ UCT Government Publications: *Land Bank Annual Report 1977*, 12-25.

²² National Library of South Africa: *The Deciduous Fruit Grower*, 10 (9), 242.

facilities, prompt delivery of output was imperative.²³ Bank inspectors found that 49 percent of farmers struggled to access produce depots and markets due to the poor condition of transport routes, specifically emphasising the dilapidated state of farm roads that led to main roads.²⁴ Upkeep of farm roads was expensive. Roads needed frequent grading and levelling, especially after heavy rains as they were generally constructed on a sandy foundation. Considering the rudimentary equipment at farmer's disposal it was a tedious, labour intensive procedure. The poor state of farm roads was an indication that farmers did not have the resources to undertake satisfactory maintenance procedures.

If maintenance was neglected due to undercapitalisation, prospects for modernising production with irrigation were bleak. Irrigation was vital to increasing the productive capacity of the land. It would also facilitate diversification of crop production and reduce the seasonality of cultivation as farmers could supplement other crops during the dry season.²⁵ However irrigation involved substantial capital investment. A source of water needed to be identified or constructed. An intake contraption such as a pump had to be installed with a conveyance system. Canals needed to be well-engineered to lead water to a desired location. An output mechanism to disperse the water efficiently and sustainably was required. A drainage scheme was integral to extract any excess water that could lead to crop damage. The cost was substantial. In 1917 German immigrant farmers in Weenen in Natal, constructed an "excellent" irrigation scheme which cost £100 000.²⁶ Considering that in 1925 a farmer could purchase 450 Afrikaner ewes with £300, £100 000 for irrigating land in 1917 was a substantial investment. Despite the benefits of irrigation and

²³ UCT Government Publications: *Land Bank Annual Report 1977*, 12-25.

²⁴ UCT Government Publications: *Land Bank Annual Report 1977*, 12-25.

²⁵ 'D. Wichelns and J. Oster, 'Sustainable Irrigation is Necessary and Achievable, but Direct Costs and Environmental Impacts can be Substantial', *Agricultural Water Management*, 86 (2006): 114-127.

²⁶ UCT Government Publication, *Land Bank Annual Report 1977*, 21.

incentive to increase production in the context of a growing domestic market, the number of schemes in the Union was small. 61 percent of regions inspected were largely or entirely dependent on rain water.²⁷ This is a conservative figure as bank agents did not examine the irrigation schemes of all debtors. Private ownership of property was not delivering the surplus capital required to pursue profit enhancing upgrades. To progress from owners of land to commercial producers, farmers needed support in the form of material requisites. The Land Bank was designed to meet these needs.

The bank's objectives proved difficult to fulfil. The first constraint was that credit demanded by farmers far exceeded the bank's fiscal capacity. The bank derived funds from two sources. The capital it inherited after the amalgamation of the colonial banks, amounting to £5 470 000, as well as sponsorship from the state that was determined annually via parliamentary votes.²⁸ In the first decade of the bank's existence state support never exceeded £800 000.²⁹ Although Figure 1 suggests that the bank managed to meet the majority of grant applications, limited funds forced it to place a cap on the amount provisioned to each farmer.³⁰ Bank regulations limited loans to £500 per applicant.³¹ Despite attempts to facilitate equitable and comprehensive capital distribution to farmers, deficient capital meant 15 percent of eligible credit applications were rejected between 1913 and 1925.³² Insufficient capital posed a major challenge to fulfilling the bank's sought-after objective.

²⁷ UCT Government Publication: *Land Bank Annual Report 1977*, 12-25.

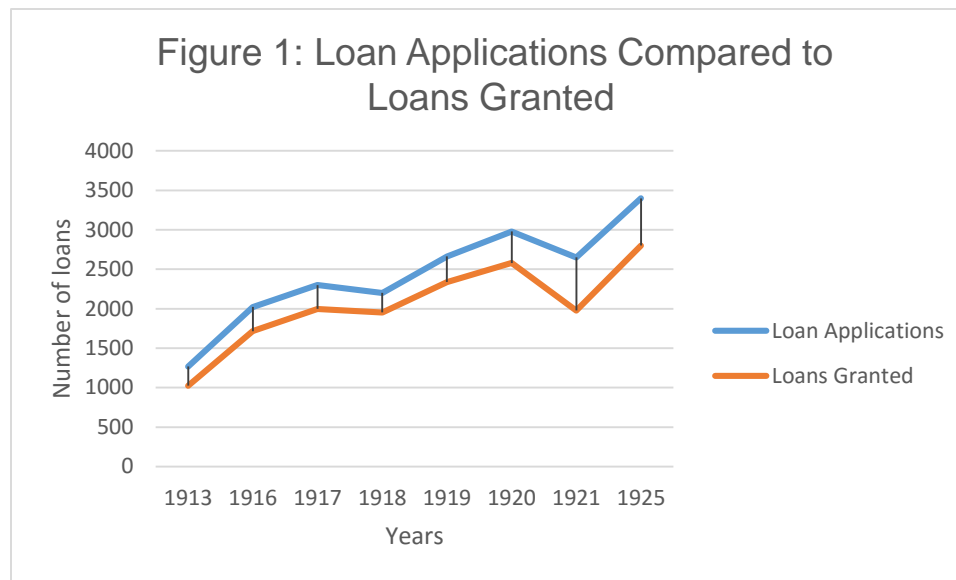
²⁸ UCT Government Publication: *Land Bank Annual Report 1977*, 12-25.

²⁹ UCT Government Publication: *Land Bank Annual Report 1913*, 14.

³⁰ UCT Government Publication: *Land Bank Annual Report 1913*, 14.

³¹ UCT Government Publication: *Land Bank Annual Report 1913*, 14.

³² UCT Government Publication: *Land Bank Annual Report 1913-1925*.



Source: Data Compiled From Land Bank Annual Reports 1913-1925.

Secondly farmers were heavily indebted to commercial banks and private money lenders.³³ These financial intermediaries offered larger loans than the Land Bank and were more flexible about the form of security farmers could provide.³⁴ While the bank based collateral estimates on the value of producer's land (which was calculated by valuating the productive capacity of land and restricting the grant to no more than 40 percent of this value), private firms authorised farmers to estimate their value on forthcoming produce.³⁵ The Land Bank was more accommodating than financial intermediaries that comprised commercial banks, co-operatives and individual creditors that were profit driven. These institutions charged exorbitant interest rates and could request repayment on short notice, while leniency with the form of security rendered producer's vulnerable to security overvaluation.³⁶ Consequently many producers were heavily indebted.

This meant that the Land Bank took on the role of preserving the country's agricultural sector, relieving farmers of the threat of losing their rural livelihoods. Figure 2 shows that a sizeable

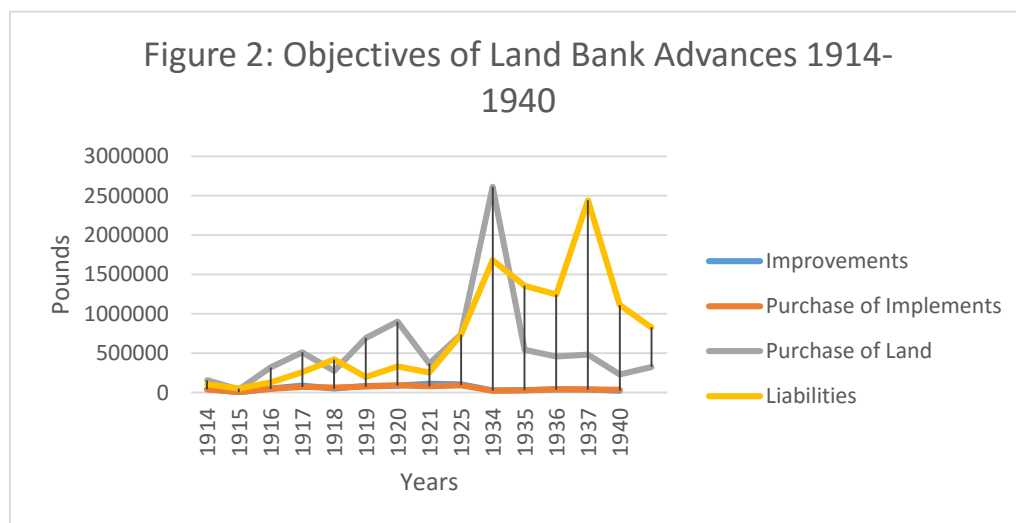
³³ UCT Government Publication: *Land Bank Annual Report 1933*, 6.

³⁴ UCT Government Publication: *Land Bank Annual Report 1933*, 7.

³⁵ UCT Government Publication: *Land Bank Annual Report 1934*, 11.

³⁶ UCT Government Publication: *Land Bank Annual Report 1934*, 11.

portion of bank advances between 1913 and 1940 was for the purpose of consolidating producer's debt to private firms. Consolidating a debt meant that the bank paid private money lenders the full sum of farmers' debts and the producer became indebted to it. Because the Land Bank's interest rate was far lower and the time frame in which loans were to be paid back more extensive, financial pressures on debtors were alleviated to a certain extent, subduing the threat of liquidation and the loss of farm lands and livelihoods.³⁷ However performing the role of a conservancy institution undermined the bank's aspiration to develop the sector. Between 1913 and 1925 only 8.8 percent of advances made were for the purpose of fixed farm improvements and 8.1 percent for the provision of farming implements. Figure 2 shows that these percentages decreased further between 1925 and 1940.



Source: Data Compiled From Land Bank Annual Report 1914-1940.

The inability of the bank to put the development of South African farming on a sound footing indicates that private property and access to funds (however limited) were not sufficient requirements for development. Farmers with land and capital but without the skill to exploit these resources and maximise utility were unable to make progress. Farmer's required support of a

³⁷ UCT Government Publication: *Land Bank Annual Report 1934*, 11.

different kind, namely human capital. Human capital is the knowledge and skills that one accumulates through education and experience. The standard of education within the white farming community in 1934 indicates that knowledge and skills were of a low standard.

According to census figures only 250 men of the 8500 that became farmers annually were graduates of agricultural schools by 1934.³⁸ Furthermore, as argued by H. Cornell, the principal of Cedara School of Agriculture, “58 percent of the children who pass from schools to find their living in agriculture have not passed even standard IV. They are without even the recognised minimum of education, and probably not 5 percent of those who go to make their living on farms have had any specific training at all for their work”.³⁹ The trend in the white South African rural community, said Cornell, was that the more educated the rural “boy”, the less likely he was to become a farmer, migrating to city centres in pursuit of a more lucrative career.⁴⁰ The repercussions of human capital deprivation on agricultural development was evident in the lack of progress in the co-operative (co-op) movement.

A co-op is a firm that is owned and regulated on democratic principles by its members, with no outside investor influence.⁴¹ Producer co-ops are founded on a voluntary basis, because farmers have similar interests to overcome market constraints.⁴² Farmers elect to amalgamate their production, distribution, and marketing or input supply, because of the cost effectiveness offered by economies of scale.⁴³ The incentive to create co-ops is that their purpose is to serve the needs

³⁸ UCT Government Publication: *Farming in South Africa 1949*, 231.

³⁹ UCT Government Publication: *Farming in South Africa 1949*, 231.

⁴⁰ UCT Government Publication: *Farming in South Africa 1949*, 231.

⁴¹ G. Ortmann and R. King, ‘Agricultural Co-operatives I: History, Theory and Problems’, *Agrekon*, 46(1) (2007): 40-68.

⁴² G. Ortmann and R. King, ‘Agricultural Co-operative II: Can They Facilitate Access of Small Scale Farmers to Input and Product Markets’, *Agrekon*, 46(2) (2007): 219-244.

⁴³ G. Ortmann, ‘Promoting Competitiveness in South African Agriculture in a Dynamic Economic and Political Environment’, *Agrekon*, 4(44) (2005): 286-320.

of members, in contrast with investor orientated firms that are established to satisfy the interests of outside investors or shareholders.

Agricultural co-ops during the Union years were of dual purpose, assisting in production and marketing of produce.⁴⁴ On the production side, duties included the purchase and sale of farming inputs, including machinery, seed, stock and packing material.⁴⁵ Marketing was based on purchasing and distributing producers output.⁴⁶ On delivery, societies paid producers an advance, later sending produce to the market.⁴⁷ The co-op movement was a means of advancing the interests of emerging white farmers. During the first thirty years of Union the co-op movement was a failure.

While capital was scarce, infrastructural upgrades were expensive and sums made available by the state owned Land Bank to individual farmers insufficient. However, if farmers worked collectively under the guise of a mutually beneficial organisation that accrued each individuals net worth, the sum of an advance would be substantial. The Centraal Westelike Ko-operatiewe *Central Western Co-operative* (CWK) was in the Transvaal. In 1921 there were 788 members. The value of the co-op was £570 000, which was determined by cumulating the value of each member.⁴⁸ Assuming that all members were of equal standing, each would be worth £723. Accounting for the Land Bank policy, which strictly limited advances to 40 percent of the market value of the producer, each farmer would be able to secure a £300 loan. This amount was sufficient to restock a farm with Afrikaner or Merino ewes or purchase seed and farming implements, but

⁴⁴ UCT Government Publication: *Farming in South Africa 1930*, 404.

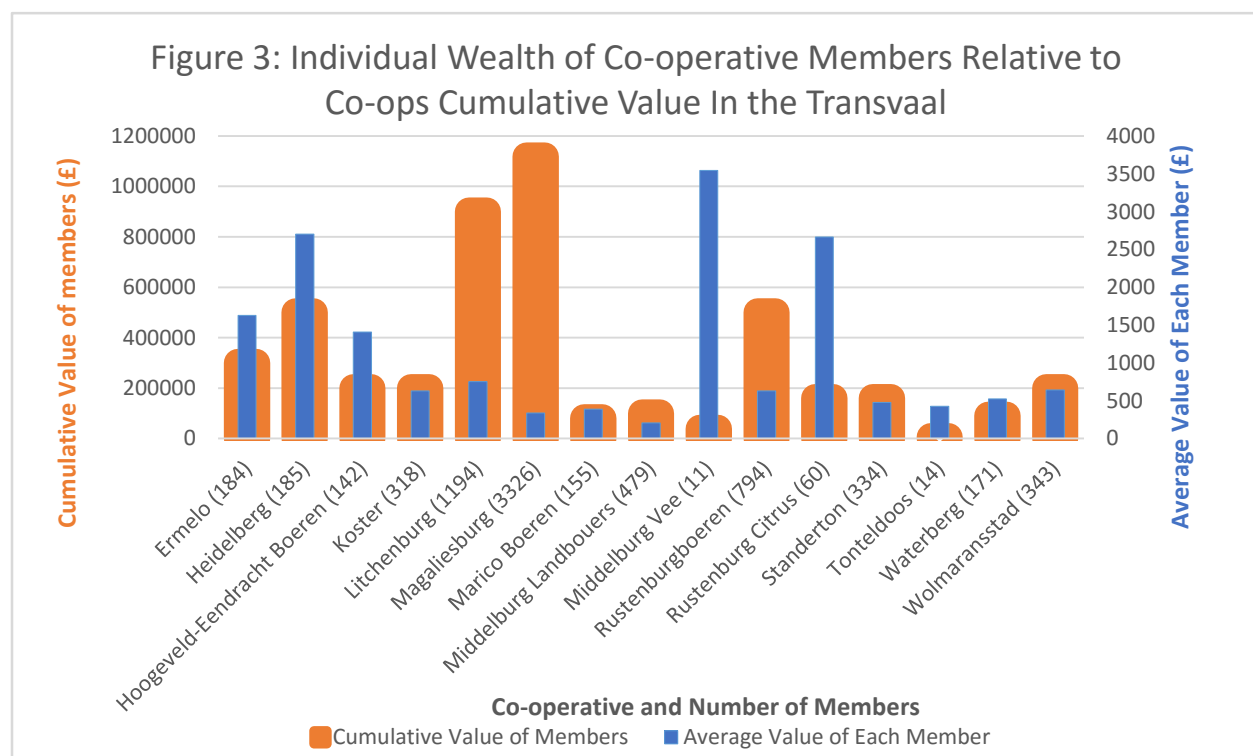
⁴⁵ UCT Government Publication: *Farming in South Africa 1930*, 404.

⁴⁶ UCT Government Publication: *Farming in South Africa 1930*, 404.

⁴⁷ UCT Government Publication: *Farming in South Africa 1930*, 404.

⁴⁸ UCT Government Publication: *Land Bank Annual Report 1921*, 6.

would make little headway in infrastructural upgrades.⁴⁹ On the contrary, combining their capital value, the CWK was able to secure a £160 000 advance.⁵⁰ Sources did not indicate how this money was spent, but the point is that co-ops made large sums of capital available, which could be used to build centralised storage facilities, irrigation schemes or convenient transport networks to the benefit of the local farming community. Figures 3, 4, 5 and 6 show that undercapitalisation and the capacity of co-operatives to redress this constraint was not limited to the CWK. Although Transvaal farmers tended to be poorer than those in other provinces, the estimated value of individuals in the wealthiest societies was not sufficient to attain a loan substantial enough to undertake comprehensive infrastructural upgrades.

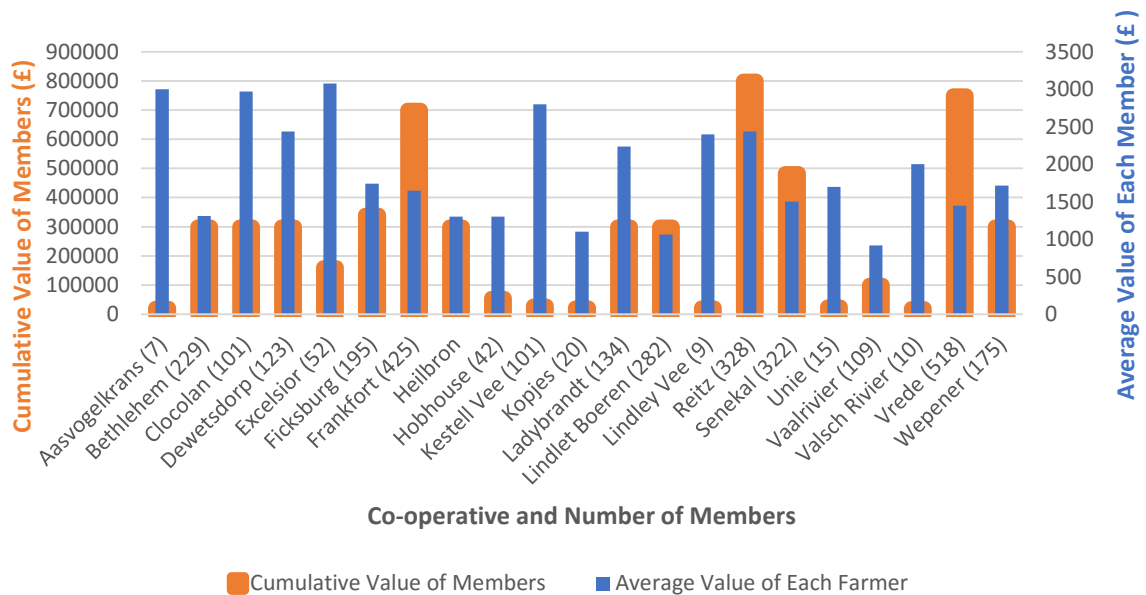


Source: Data Compiled From Land Bank Annual Report 1921.

⁴⁹ UCT Government Publication: *Land Bank Annual Report 1977*, 21.

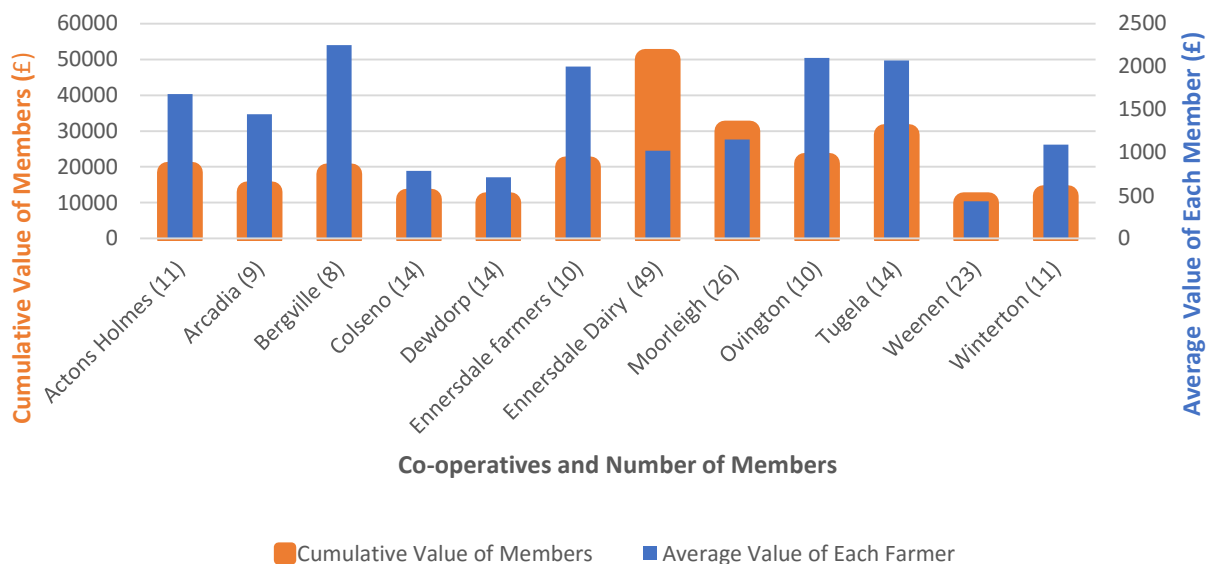
⁵⁰ UCT Government Publication: *Land Bank Annual Report 1977*, 21.

Figure 4: Individual Wealth of Co-operative Members Relative to Co-ops Cumulative Value In the Orange Free State

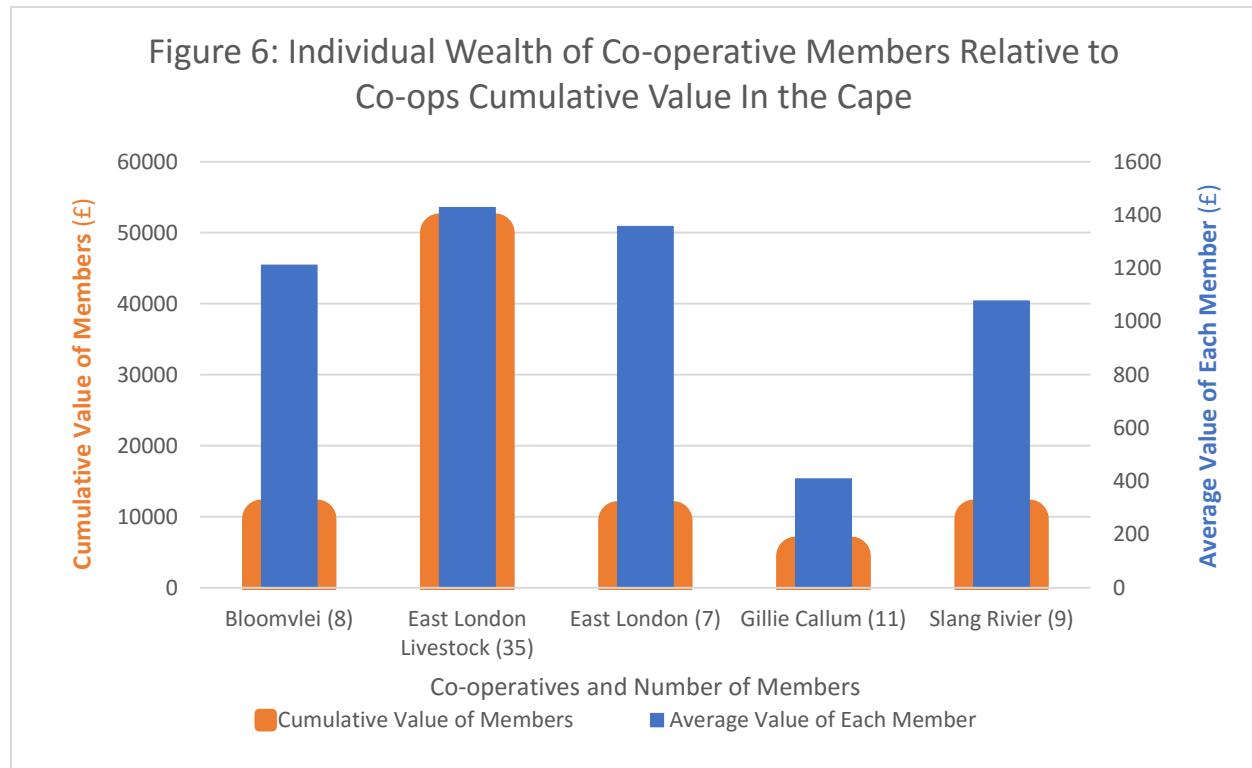


Source: Data Compiled From Land Bank Annual Report 1921.

Figure 5: Individual Wealth of Co-operative Members Relative to Co-ops Cumulative Value In Natal



Source: Data Compiled From Land Bank Annual Report 1921.



Source: Data Compiled From Land Bank Annual Report 1921.

Secondly co-operation co-ordinated marketing of produce, reducing costs and facilitating higher market prices. In certain years, when market dynamics were in their favour, it was more profitable for farmers to avoid marketing co-ops as they would not be burdened by the fee charged by the society. But in general, argued Mr A. van der Post Assistant Chief of the Division of Agricultural Economics and Marketing, this was not the case for undercapitalised farmers.⁵¹ He pointed out that the majority did not have suitable storage space and were forced to sell produce immediately after the harvest.⁵² The luxury and profit gains of withholding produce from the market during periods of saturation was absent, while their capacity to progressively sell portions throughout the season, as opposed to earning a lump sum directly after cultivation, meant that their income was erratic.⁵³

⁵¹ UCT Government Publication: *Farming In South Africa 1928*, 1175-1176.

⁵² UCT Government Publication: *Farming In South Africa 1928*, 1175-1176.

⁵³ UCT Government Publication: *Farming In South Africa 1928*, 1175-1176.

Apart from a mechanism to regulate the markets' invisible hand, argued van der Post, collecting large quantities of particular commodities made quality grading possible. Grading entailed sorting produce of the same kind, but of different quality. Different grades were packaged accordingly. The problem was that individual producers were unable to grade adequately because they did not produce the volume needed to sort output.⁵⁴

Co-ops were capable of performing grading and other valuable services that could modernise infrastructure and improve producer prices. Yet the co-op movement failed to take hold. In 1913 the number of farmers registered as members of co-ops was a mere 12 159.⁵⁵ This number declined to 9490 in 1917, improved slightly in 1919 to 9805, and reached 12 339 in 1921. The movement gained little momentum and was “so klein, onontwikkeld en onsamehangend dat dit nie veel invloed kan uitoefen nie” (*so small, undeveloped and unorganised that it did not have much influence*).⁵⁶

For some, avoiding co-operative participation was an informed economic decision before 1922. Land Bank legislation specified that advances would only be made to co-op societies and companies of joint and several liability.⁵⁷ Consequently if one member defaulted on a loan, their associates were liable and their assets could be liquidated irrespective of the amount they invested in the co-op. The risk of co-operation was not worth the reward of forging economies of scale. In 1922 this aspect of Land Bank legislation was amended. Co-ops became eligible for loans on the premise of limited liability.⁵⁸ Less financial risk corresponded with a sharp rise in the number of

⁵⁴ UCT Government Publication: *Farming In South Africa 1928*, 1175-1176.

⁵⁵ J. Van NieKerk, ‘*N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika*’, PhD Univeristy of Potchefstroom, (1968): 120-160.

⁵⁶ J. Van NieKerk, ‘*N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika*’, 150-160.

⁵⁷ UCT Government Publications: *Land Bank Annual Report 1977*, 21.

⁵⁸ Members were only liable for the amount of the nominal value of their investment in the co-op.

co-ops, which grew from 85 with a total of 14 282 members in 1922 to 429 with 45 756 members in 1930.⁵⁹

It is incorrect to assume that the upsurge in the number of societies represented an improvement in their effectiveness. According to J. Adams of the Department of Agriculture and Forestry on the state of co-ops between 1922 and 1935, “die tydperk kan nie as een van skouspel agtige vooruitgang bestempel word nie. Dit was a tydperk van voorsetting van die stryd van die eerste periode en die verkryging van ‘n begrip van die nuwe patroon, met die uitsondering dat die drang om te ko-opareer nou van alle dele van die land uitgegaan het. Dit was nie soos in die eerste tydperk die geval nie”. (*The period cannot be labelled as one of spectacular progress. It was a period that was a continuation of the struggle in the first period, with the exception of a new pattern where peoples urge to co-operate was gone. This was not the case in the first period*).⁶⁰

Limited influence of marketing co-ops during this period demonstrates the inefficacy of the movement despite an upsurge in membership from 1922. Paragraph 17 of Act No. 38 of 1925 stated that if 75 percent of farmers in a given area market their produce through a single co-op and the amount they supply the co-op is equivalent to 75 percent of the total output of a particular product within that area, the relevant minister was authorised to prevent this commodity being sold through any other intermediary.⁶¹ Tellingly, the minister was never forced to make a ruling on the matter, as no co-op managed to single-handedly facilitate such co-ordination. Due to their ineffectiveness, Mr van der Post insisted that members used co-ops as a last resort rather than as a

⁵⁹ J. Van NieKerk, ‘*N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika*, 153.

⁶⁰ J. Van NieKerk, ‘*N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika*, 154.

⁶¹ J. Van NieKerk, ‘*N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika*, 154.

development enhancing strategy. For example between 1931 and 1932 13 000 new farmers joined co-ops, a move which coincided with dwindling produce prices due to the Great Depression.⁶²

The reluctance to join co-op societies, stated van der Post, was due to the short-sightedness of farmers and their limited capacity to make informed economic decisions.⁶³ Farmers sold their produce to unaffiliated middlemen as the initial advancement paid was higher than that offered by co-ops.⁶⁴ While payment from the middleman ceased after their initial transaction, co-ops compensated for their meagre primary advancement only after regulating supply and selling output according to the state of the market. Incrementally over the entire season, marketing through co-ops was more financially rewarding than the immediate gratification of the single lump sum payment from a middleman.⁶⁵ Failure to support co-ops also had the effect of deflating the price of produce for both members and non-members. Despite their higher initial payment non-affiliated marketing firms actually purchased produce relatively cheaply and could profit from selling them at lower prices, deflating market value.⁶⁶ Resisting the co-op movement fuelled a negative feedback mechanism that reduced returns for all farmers. These ill-informed practices indicate limited knowledge and understanding of market dynamics, common implications of human capital deficits.

In sum, financial and human capital weaknesses limited farmers' capacity to develop from South Africa's institutional foundation that protected white owned property. Farmers required additional support to overcome undercapitalisation.

⁶² J. Van NieKerk, 'N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika, 157.

⁶³ UCT Government Publications, *Farming In South Africa 1928*, 1175-1176.

⁶⁴ J. Van NieKerk, 'N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika, 157.

⁶⁵ J. Van NieKerk, 'N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika, 158.

⁶⁶ J. Van NieKerk, 'N Vergelykende Studie Van Die Landbou En LandbouKoöperasies in Nederland and Suid-Afrika, 158.

Chapter 3: State Intervention and Agricultural Development 1937-1980

From 1937 state-led initiatives broke the shackles of undercapitalisation that undermined development. This section discusses capital improvements and agricultural development after the state took a more interventionist approach.

State intervention in agriculture was not the same as developmental support for industry. However, as a strategy for earning foreign exchange, assuring domestic food security and appeasing the nationalist party's rural supporters in a context of rapid urban industrial development, state subsidy for agriculture may be viewed as developmentalist. The state went beyond ensuring protection of private property and intervened to facilitate production and marketing.

Prior to World War One South African industrial development was restricted because it could not compete with cheaper foreign produced manufactured imports.¹ The Union's economy lacked diversity as export oriented primary sectors dominated. To reduce dependency on minerals, wool and ostrich feather exports, South Africa needed to adopt a nationalist approach to diversifying its economy. Kaplan and Freund argue that state intervention in the economy between 1924 and 1948 encompassed developmental attributes, although Freund believed that the true character of the developmental state only started to emerge under the presidency of Smuts after 1940.²

In 1924, the Pact government comprised of white labour and nationalist interests, adopted a developmentalist approach to the economy by (a) seeking to loosen ties with the imperial economy, (b) support industrialisation, (c) use export revenues to subsidise big projects. The Tariff Act was

¹ B. Freund, 'South Africa, the Union Years 1910-1948: Political and Economic Foundations', 243.

² B. Freund, 'A Ghost From the Past: The South African Developmental State of the 1940's', *Transformation*, 81(82) (2013): 1-33.

introduced in 1924 to protect infant industries, imposing import duties on foreign manufactures to protect South African infant industries.³ Also over the next two decades the state established the Electricity Supply Commission (ESCOM), the Iron and Steel Corporation (ISCOR) and instituted the National Roads Act.⁴ Protectionism supported industrialists, ESCOM and ISCOR supplied industrial necessities and the National Road Act advanced the distributive capacity of South African manufactures. State intervention incentivised industrialists to expand manufacturing.

State support for agricultural improvement complemented this developmental strategy in three ways. Firstly agricultural production needed to expand to sustain South Africa's growing urban population. The government introduced the wheat, maize, meat and milk control boards to advance domestic food production. Secondly, agricultural exports provided foreign exchange for imported machinery required by the domestic industry. Thirdly capital accumulation among rural South Africans increased the consumptive capacity of the domestic market, propagating demand for local manufactures.

The Marketing Act of 1937 was the most important legislation introduced by the government in agriculture since the establishment of the Land Bank. The Act led to the establishment of a selection of marketing control boards.⁵ Marketing control boards may be defined as "public bodies set up by government action and delegated legal powers of compulsion over producers and handlers of primary or processed agricultural products".⁶ Their effect on economic development

³ B. Freund, 'South Africa: The Union years', 243.

⁴ B. Freund, 'South Africa: The Union years', 248. The Pact Government was a coalition between the Labour Party and National Party. The Pact government remained in power between 1924 and 1933. It played an important role in supporting South Africa's national capitalist endeavour by implementing public policies that stimulated industrialisation.

⁵ J. Groenewald, 'The Agricultural Marketing Act: A Post-Mortem', *South African Journal of Economics*, 68 (3) (2000): 161-176.

⁶ J. Abbot, 'Agricultural Marketing Boards in Developing Countries', *Journal of Farm Economics*, 49(3) (1967):705-722.

depended on the context in which they were founded. For example, where settler capitalism underlined the economy, as in South Africa, Australia and Canada, control boards were generally regarded as growth enhancing institutions designed to uplift local white actors. These boards intervened in the marketing of agricultural produce in order to boost the sector. They allowed producers to accumulate from more efficient and organised marketing, giving them the means to reinvest in production. This would drive modernisation, facilitating the development of a national economy.⁷ Where colonial capitalism predominated, as in British West Africa, control boards promoted accumulation for colonialists, which constrained the development and self-sufficiency of local farmer's, limiting the extent to which the sector could contribute to national economic development.⁸ In South Africa, control boards supported the settler economy.

Control boards played a vital role in the growth of capitalist agriculture in South Africa between 1940 and 1970. Their value was evident in the comparison between the producer price index (PPI) and the farming requisite index (FRI). PPI measures the variation to the price farmers receive for produce, while the FRI determines changes to the cost of farming inputs needed for commercial production. Between 1958 and 1972 South Africa's PPI for all commodities combined, increased

⁷ M. Veeman, 'Marketing Control Boards: The Canadian Experience', *American Journal of Agricultural Economics*, 69(5) (1987): 992-1000; G. Skogstad, 'The Dynamics of Institutional Transformation: The Case of the Canadian Wheat Board', *Canadian Journal of Political Science*, 38(3) (2005): 529-548; T. Schmitz and R. Gray, 'State trading Enterprises and Revenue Gains From Market Power: The Case of Barley Marketing and the Canadian Wheat Board', *Journal of Agricultural and Resource Economics*, 25(2) (2000): 596-615; C. Carter, R. Loyns and D. Berwald, 'Domestic Costs of Statutory Marketing Authorities: The Case of the Canadian Wheat Board', *American Agricultural Economics Association*, 80 (1998): 313-324; A. McCalla, 'A Duopoly Model of World Wheat Pricing', *Journal of Farm Economics*, 48(3) (1966): 711-724.

⁸ For more on colonial control boards see, P. Bauer, 'Origins of the Statutory Export Monopolies of British West Africa', *The Business History Review*, 28(3) (1954): 197-213. D. Meredith, 'The Colonial Office, British Business Interests and the Reform of Cocoa Marketing in British West Africa, 1937-1945', *The Journal of African History*, 29(2) (1988): 285-300. P. Bauer, and F. Paish, 'The Reduction of Fluctuations in the Incomes of Primary Producers', *The Economic Journal*, 62(248) (1952): 750-780; D. Williams, 'West African Marketing Boards', *African Affairs*, 52(206) (1953): 45-54; R. Alence, 'Colonial Government, Social Conflict and State Involvement in Africa's Open Economies: The Origins of the Ghana Cocoa Marketing Board, 1939-1946', *Journal of African History*, 42 (2001): 397-416.

by 29.84 percent, while the FRI only increased by 26.66 percent.⁹ These indexes show that price fixing sustained favourable producer prices relative to input costs. In other words, if producers used inputs efficiently, controlled marketing fostered an economic environment conducive to accumulation.

Another contribution of controlled marketing was that it forced the state to pursue more liberal delivery of financial capital which was necessary for the effectiveness of their price fixing scheme. Traditionally the Land Bank only provisioned for long term loans (for the purchase of land, funding of infrastructure or consolidation of debts), but in 1938 it was authorised to advance short term loans and by 1959 medium term loans were also added to the bank's credit portfolio.¹⁰ Another major shift came about in 1959 when the state approved the Land Bank's request to participate in the private money market to extend its fiscal capacity.¹¹ Financial capital advances augmented exponentially. Between 1952 and 1969 cash credit accounts advanced by the bank increased by 71 percent from R147 677 688 to R520 763 000.¹² Advancements made to co-operatives to fund the full amount paid to producers of the most important commodities (maize, white maize, wheat, barley and oats and oilseed) increased by 67 percent from R65 189 370 in 1953 to R198 906 069 in 1970.¹³ Instalment loans to co-ops to fund the construction of bulk handling for grain increased from R7 397 055 that could store just under 400 000 000 kilograms (kg), to R38 217 218 with a capacity of over two billion kg.¹⁴

⁹ UCT Government Publications: *The Third Report of the Commission of Enquiry into Agriculture*, 15.

¹⁰ UCT Government Publications: *The Third Report of the Commission of Enquiry into Agriculture*, 15. Medium term loans are for the purpose of purchasing intermediate inputs including tractors, livestock and water pumps.

¹¹ UCT Government Publication: *Land Bank Annual Report 1959*, 3-7.

¹² UCT Government Publication: *Land Bank Annual Report 1959*, 3-7.

¹³ UCT Government Publication: *Land Bank Annual Report 1953-1970*.

¹⁴ UCT Government Publications: *The Third Report of the Commission of Enquiry into Agriculture*, 49.

National production statistics suggest that farmers benefitted from this intervention. Between 1947 and 1970, white farmers' income increased by R400 000 000.¹⁵ Their income per capita increased by 600 percent due to a 30 percent decline in the number of farmers in South Africa.¹⁶ Between 1951 and 1970, the physical volume of output increased by 6.7 percent and the gross value of output by 10.5 percent.¹⁷ Improvements to physical volume and gross value of output seemed insignificant in light of the advantageous price of produce and accessibility of financial capital. A Commission of Enquiry into Agriculture was appointed in 1972 to identify the reasons for this weak performance.

The commission found that agricultural development on white owned farms was uneven. Certain farmers had improved their total factor productivity over four decades while others had either remained stagnant or regressed. Figure 7 compares the net return per R100 of capital invested of the most successful farmers relative to the poorest performers from the same region. Successful farmer's return was 80 percent higher in Bethal/Standerton, 64 percent in Frankfort/Villiers, 61 percent in Bethlehem/Reitz, 73 percent in the North West/Orange Free State and 77 percent in the Western Transvaal.¹⁸ Indeed farmers' subject to similar environmental conditions derived notably different returns on equitable investments, indicative of a situation where underperformers were satisfied with just getting by. Controlled marketing meant that protection for underperformers distorted national agricultural growth statistics. Had they been left out, national statistics over the two decades would be considerably higher. Investigating the mechanisation revolution in South

¹⁵ UCT Government Publications: *The Third Report of the Commission of Enquiry into Agriculture*, 49.

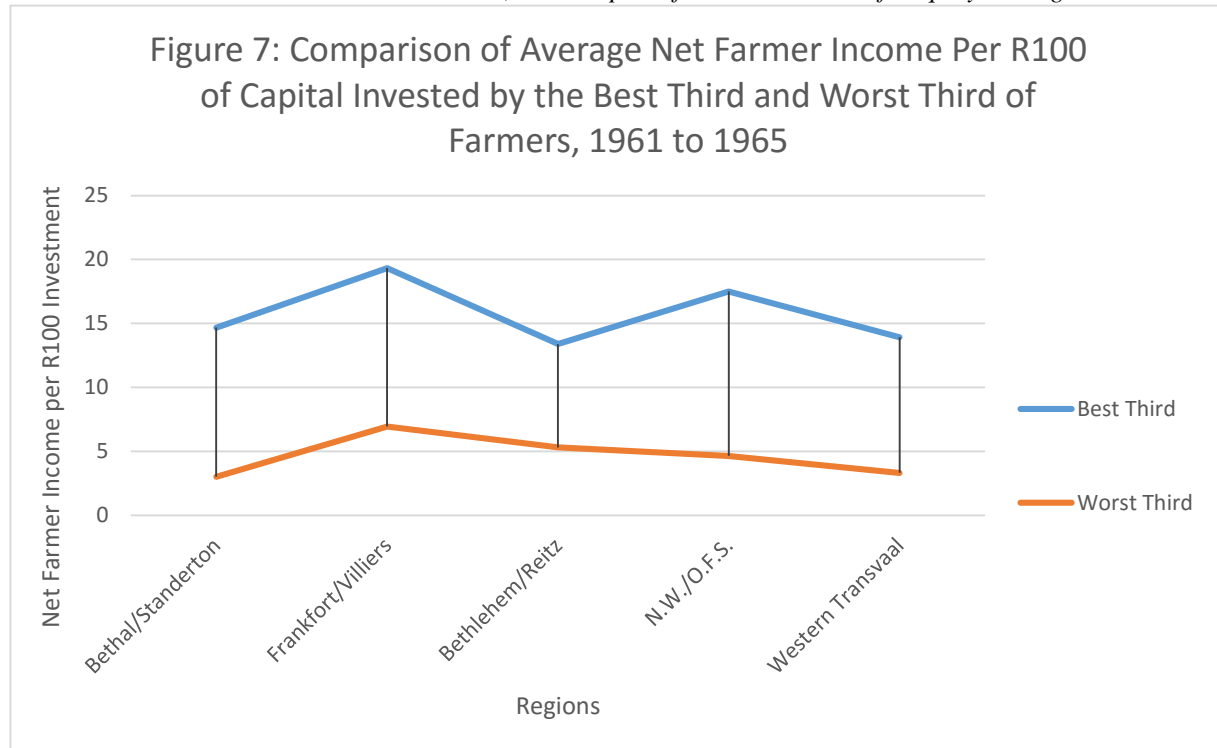
¹⁶ UCT Government Publications: *The Third Report of the Commission of Enquiry into Agriculture*, 15.

¹⁷ UCT Government Publications: *The Third Report of the Commission of Enquiry into Agriculture*, 15.

¹⁸ UCT Government Publications: *The Third Report of the Commission of Enquiry into Agriculture*, 30.

African agriculture not only revealed improvements, but also showed just how wasteful certain producers were. Figure 7 illustrates this.

Source: UCT Government Publications, *Third Report of the Commission of Enquiry into Agriculture*.



Although the market value and cost of maintaining tractors far exceeded that for draft animals, mechanisation augmented efficiency significantly. Preparing an acre for maize production with draft animals required about ten hours of human labour and over 30 hours of drawbar horse power, as compared to under five and nine hours with the use of a tractor respectively.¹⁹ While tractors reduced crop preparation procedures, they also increased farmer's net income. Between 1945 and 1948 the average net income of tractor powered farms was £212 per hundred morgen cultivated, compared to only £138 on farms powered by draft animals.²⁰ Improvements due to mechanisation

¹⁹ National Library of South Africa: *Farmer's Weekly* 29 May 1940, 857.

²⁰ National Library of South Africa: *Farmer's Weekly* 8 July 1958, 47. While proponents of mechanization mentioned improvements to net income per morgen cultivated, they did not mention whether this off-set increased costs associated with tractor ownership.

were global. In the USA and Canada agricultural production grew by 60 percent, despite a 20 percent decline in man hours by 1953.²¹ A sharp rise in tractor usage after WWII was evidence of more accessible financial capital.

Between 1937 and 1950, 98 560 fewer draft horses were used nationally.²² The number of draft oxen also declined. During the 1945/46 season in the Orange Free State there were four tractors and 37 teams of draft oxen to every ten farms.²³ By 1950/51 the number of tractors increased sevenfold with 82 percent fewer oxen teams. Between 1947 and 1949 tractor numbers on farms doubled from 22 397 to 48 422.²⁴ By 1959, £250 000 000 had been invested in agricultural machinery. South Africa was trumped by Australia as the largest importer of British tractors in the world.²⁵ The flow of investment into mechanization continued after 1960, with the Land Bank advancing R60 617 686 in medium term loans for the purchase of tractors by 1979.²⁶ Since 65 percent of medium term loans were obtained from private financial intermediaries, credit for tractors on a national scale was probably closer to R200 000 000. The magnitude of capital expenditure is significant. Whether farmers financed mechanisation with profits from production or by means of loans, increased expenditure indicates an improvement in the farmers' financial position. While funding improvements from surplus capital confirms that farmers were wealthier, security for large loans was a sign of financiers' confidence in farmers' financial stability and capacity to remunerate creditors.

²¹ National Library of South Africa: *Farmer's Weekly* 28 October 1953, 18.

²² National Library of South Africa: *Farmer's Weekly* 29 April 1953, 13.

²³ National Library of South Africa: *Farmer's Weekly* 8 July 1958, 47.

²⁴ National Library of South Africa: *Farmer's Weekly* 24 June 1959, 33.

²⁵ National Library of South Africa: *Farmer's Weekly* 11 November 1959, 15; National Library of South Africa: *Farmer's Weekly* 11 June 1958, 32.

²⁶ UCT Government Publications: *Land Bank Annual Report 1959-1971*.

Inasmuch as the mechanisation revolution was proof of progress, it also highlighted persistent weaknesses in human capital. Mechanisation increased the net income per morgen for farmers, but surplus accumulation was only possible if it surpassed higher costs to operate tractors. For example, the National Advisory Council for Agricultural Production in South Africa estimated that farmers spent R21 000 000 annually on tractor repairs, an amount that could be reduced with regular maintenance.²⁷ They noted that mechanisation expenses in South Africa quadrupled those of Europe making South Africa the worlds' largest importer and consumer of spare parts.²⁸ Both were consequences of rougher terrain but also poorly trained farmers incapable of following basic tractor maintenance procedures.²⁹ Neglecting maintenance not only increased the cost of tractor repairs, but an under-performing tractor also severely hampered efficiency. According to the Minister of Agricultural Technical Services Mr P. le Roux, tractors in South Africa covered 210 000 000 miles annually.³⁰ Inadequate maintenance caused an average power loss of ten percent, reducing the distance covered by 21 000 000 miles. This wasted 6 000 000 human hours per annum.³¹ Lack of insight into specialised equipment meant that farmers made wasteful investments and equipment was left unused.³² Government officials estimated that it went into the hundreds of millions of rand.³³ Effective mechanisation rested on farmer's competency, but skill deprivation was not uniform. Strong performances from a few farmers was undermined by a larger underperforming constituency.³⁴

²⁷ National Library of South Africa: *The Deciduous Fruit Grower*, 21 (5), 99.

²⁸ National Library of South Africa: *The Deciduous Fruit Grower*, 21(10), 276.

²⁹ National Library of South Africa: *The Deciduous Fruit Grower*, 21(10), 276.

³⁰ National Library of South Africa: *Farmer's Weekly* 2 May 1961, 33.

³¹ National Library of South Africa: *Farmer's Weekly* 2 May 1961, 33.

³² National Library of South Africa: *Farmer's Weekly* 14 June 1961, 23.

³³ National Library of South Africa: *Farmer's Weekly* 14 June 1961, 23.

³⁴ UCT Government Publications: *The Third (Final) Report of the Commission of Enquiry into Agriculture*, 30.

From 1973 the influence of state intervention subsided due to a market downturn. Competitive production became a necessity for survival. The Oil Crisis in 1973 triggered a perpetual rise in costs of production and marketing.³⁵ Figure 8 shows that between 1965 and 1975 input costs of production doubled. The price hike was particularly severe for deciduous fruit, citrus fruit, wool and other export orientated sectors. In 1973 Britain became a member of the European Economic Community (EEC).³⁶ This ended decades of imperial preference offered by Britain to members of the British Commonwealth. Imperial preference had meant that agricultural products from Commonwealth members could breach British borders duty free.³⁷ Abandoning the contract inflated marketing costs as South Africa was forced to pay import duties.³⁸ South Africa also stood to lose market share as members of the EEC benefitted from import tax concessions.³⁹ Also, consumer boycotts generated by international anti-Apartheid campaigns led to a decline in demand for South African export produce.⁴⁰

Confronted by capital constraints the government deregulated agricultural credit markets in 1981.⁴¹ The states' new monetary policy put an end to low interest on agricultural credit.⁴² From 1981, the market regulated the price of credit.⁴³ As Figure 9 demonstrates the cost of credit increased significantly. Interest on Land Bank and commercial bank loans increased three fold between 1981 and 1985.

³⁵ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1975*, 18.

³⁶ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1975*, 18.

³⁷ National Library of South Africa: *The Deciduous Fruit Grower*, 22(12) (1972), 291.

³⁸ National Library of South Africa: *The Deciduous Fruit Grower*, 18(9) (1968), 288.

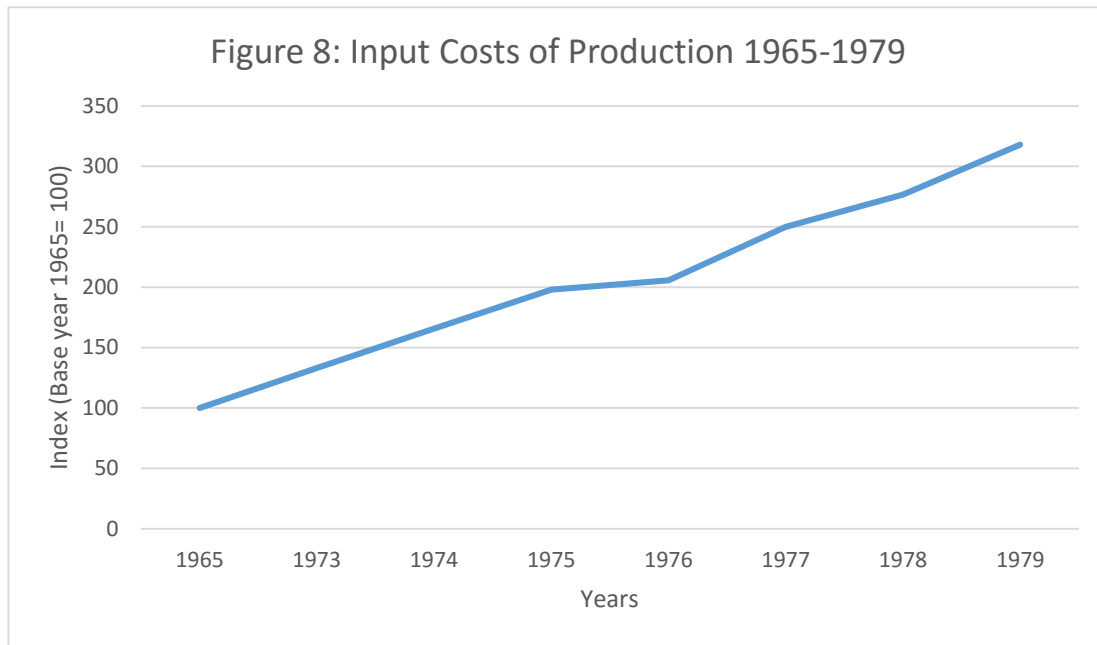
³⁹ UCT Government Publications: *Debates of the House of Representatives 1979*, 790-818.

⁴⁰ UCT Government Publications: *Debates of the House of Representatives 1979*, 790-818.

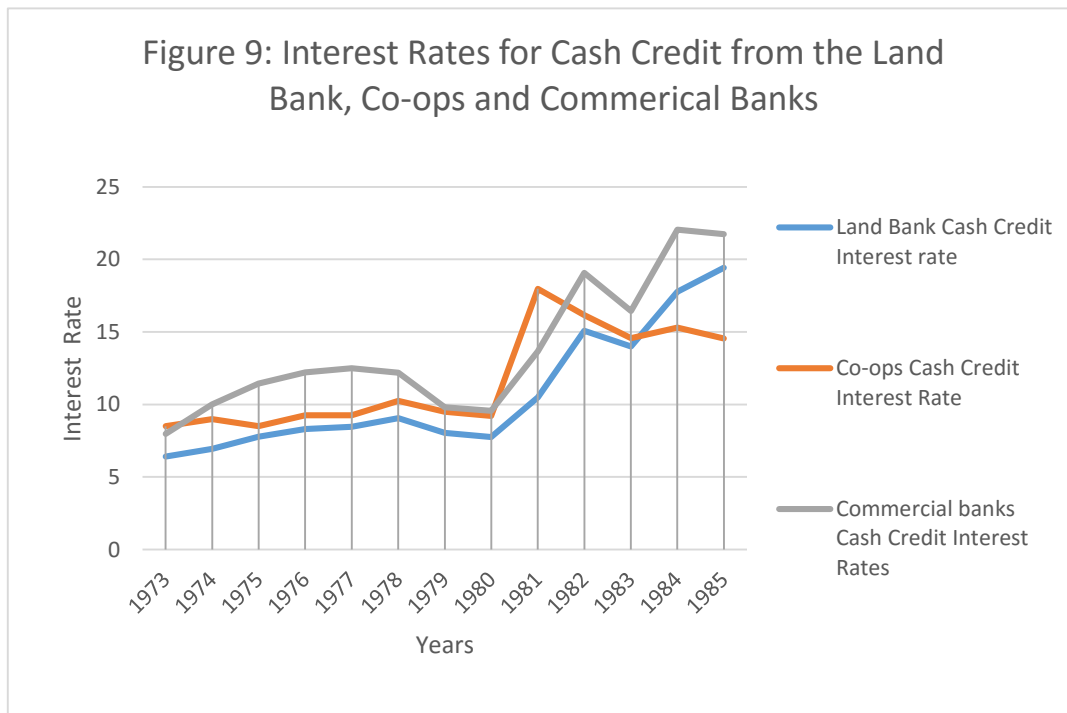
⁴¹ UCT Government Publications: *Report of the Investigation into the Restructuring of Agriculture*, 31.

⁴² UCT Government Publications: *Debates of the House of Representatives 1979*, 790-818.

⁴³ UCT Government Publications: *A Report of the Investigation into the Restructuring of Agriculture*, 31.



Source: *Annual Report of the Secretary for Agricultural Economics and Marketing, July 1973-June 1974*



Source: Economic: *Report of an Investigation into the Restructuring of Agriculture* 20 November 1986.

In sum, between 1937 and 1980, the state created an environment conducive to growth by aiding undercapitalised farmers. However, because many farmers underperformed despite state support, the real value added by state intervention was distorted. This chapter has shown that farmers who

benefitted from state support were able to compete successfully in the market place and accumulate. Moreover, it suggests that state intervention needs to go beyond protection of private property. Using data from white commercial farming between 1937 and 1980, this chapter confirms that developmentally oriented state support can trump deficits that limit growth.

Chapter 4: State Intervention in the Deciduous Fruit and Wheat Sectors

The Deciduous Fruit Sector

In 1960 the chairman of the Deciduous Fruit Board (DFB) Mr Fernhout declared that it was “no exaggeration to say that we have been riding on the crest of a wave of prosperity”.¹ The DFB was conceived as a democratic organisation and all members participated in developing or determining the boards’ strategies, policies and functions.² For 20 years the DFB had smoothed farmers’ access to financial capital encouraging progressive farming.

The Marketing Act (1937) enabled the establishment of the DFB as an institutional body led by a chairman and general manager and overseen by the Minister of Agriculture.³ Board members nine included producer co-operative representatives from the Western Cape, one representative of farmers in the Transvaal, Natal and Orange Free State, three consumer co-operative representatives, one fruit processing co-operative representative, a representative from the Department of Agricultural Technical Services and one person representing certified fruit distributors.⁴

The DFB’s role in the deciduous fruit sector was multifaceted. Firstly it assisted farmers by purchasing and reselling all the packing material required to deliver fruit to the local and export market.⁵ Secondly the board formulated all packing, grading and quality standards.⁶ Thirdly it lobbied for legislation that would counteract disorganised marketing.⁷ From 1939 the DFB

¹ National Library of South Africa: *The Deciduous Fruit Grower*, 10 (9), 247.

² UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

³ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

⁴ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

⁵ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

⁶ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

⁷ National Library of South Africa: *The Deciduous Fruit Grower*, 10 (9), 240.

became the sole marketing agent of all export deciduous fruit (apples, pears, peaches, plums, nectarines, apricots and grapes).⁸ Western Province farmers affiliated to the DFB delivered their produce to warehouses in the Table Bay or Port Elizabeth Harbours.⁹ Once in the boards' possession, fruit was organised by a pooling system. This entailed combining fruit from all producers by variety. Individual farmers lost their identity and fruit was marketed under a single brand.¹⁰ Apples were marketed under the 'Cape' brand.¹¹ Once fruit was shipped overseas, the DFB regulated the distribution of supplies in accordance with market conditions.¹² The pooling system and supply regulation were intended to counteract over-competition among South African fruit exporters to improve fruit prices. Fourth the DFB implemented levies on exports to fund research on fruit cultivars, packing and handling systems that might improve the industry's production, marketing and distribution. Finally, the DFB settled all marketing costs with the seasons' gross income, distributing the balance to Western Province producers according to the amount and variety of fruit they delivered.

Between 1939 and 1945 the DFB's major task was to find international markets.¹³ Because the sector was export oriented, the DFB's first five years of marketing control were a challenge. When exports ceased during WWII, the South African market did not have the capacity to absorb the quantity of fruit produced.¹⁴ Its solution was fruit processing. To increase local demand, the DFB sought to establish a fruit processing industry. The fruit canning and drying industries were expanded with the assistance of government subsidies.¹⁵ The DFB also distributed state subsidies

⁸ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

⁹ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

¹⁰ National Library of South Africa: *The Deciduous Fruit Grower*, 18(12), 373.

¹¹ National Library of South Africa: *The Deciduous Fruit Grower*, 18(12), 373.

¹² UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 2.

¹³ National Library of South Africa: *The Deciduous Fruit Grower*, 10(9), 246.

¹⁴ National Library of South Africa: *The Deciduous Fruit Grower*, 10(9), 246.

¹⁵ National Library of South Africa: *The Deciduous Fruit Grower*, 10 (9), 246.

funded by the Land Bank to compensate producers for declining fruit prices.¹⁶ Between 1940 and 1941 the Land Bank loaned the DFB in excess of £7 000 000 at a low interest rate to cover costs of production and financially incentivise farmers to continue cultivation.¹⁷ State intervention provided a lifeline that allowed the sector to remain functional in a restrictive economic climate. In 1946 exporting resumed, which initiated the DFB's next challenge - to foster an economic environment that assisted fruit farmers development.¹⁸

The greatest constraint to a profitable fruit industry in South Africa was the disorganised state of marketing, which provoked over-competition and low prices.¹⁹ While the DFB's constitution outlined its controlled marketing strategy, the efficacy of the institution's management was key to implementing the blue print effectively. Figure 10, which compares the trend in nominal gross income, payments to producers and marketing costs relative to the volume of fruit exported between 1960 and 1968, suggests that the DBF's contribution to organised marketing was commendable. Apart from the years 1964 and 1968 when gross income increased despite a reduction in tons exported, costs, payments and incomes generally increased correspondingly to export volumes. In economic modelling it is expected that gross income and costs will increase as exports increase because more fruit is delivered to the market. What is significant about figure 10 is that gross income and costs reflected the tonnage exported. This suggests that fruit prices remained stable, while costs only increased when more fruit was exported, demonstrating the effectiveness of the DFB's marketing scheme in counteracting over-competition, market saturation and stabilising cost management. The DFB's ability to eliminate dead freight and its assessment

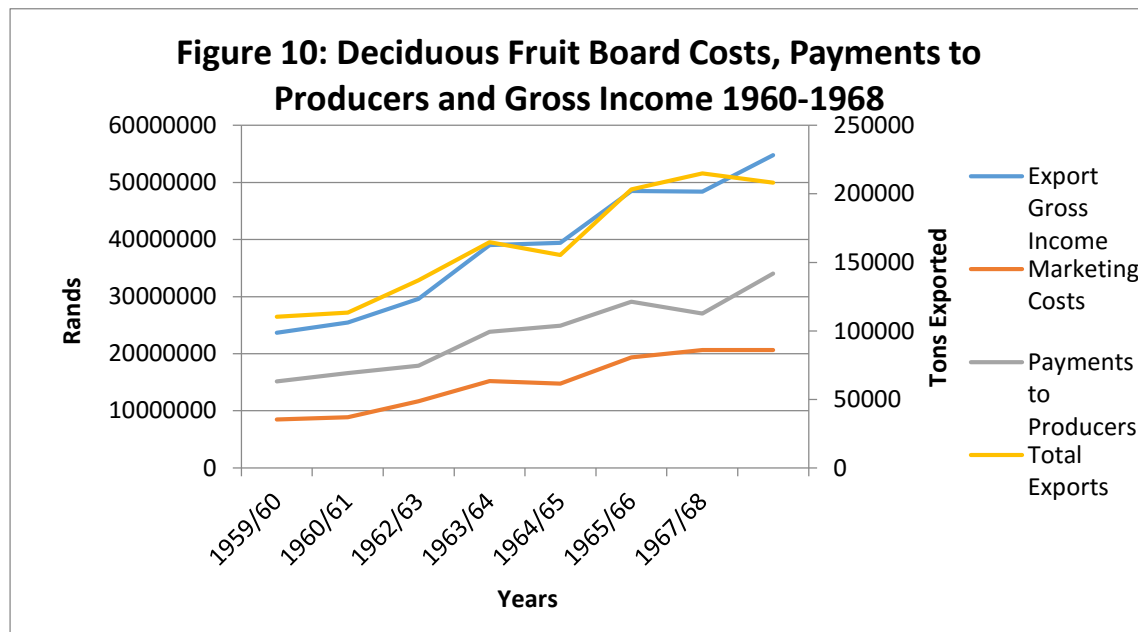
¹⁶ National Library of South Africa: *The Deciduous Fruit Grower*, 10(9), 246.

¹⁷ UCT Government Publication: *Land Bank Annual Report 1940-41*, 20.

¹⁸ National Library of South Africa: *The Deciduous Fruit Grower*, 10(9), 246.

¹⁹ National Library of South Africa: *The Deciduous Fruit Grower*, 21(1), 14.

of whether investments to modernise marketing would be remunerative was testament to its efficacy as a growth enhancing platform.



Source: National Library of South Africa: *The Deciduous Fruit Board, 1960-1968*

Dead freight is a fine imposed by shipping companies to compensate for losses incurred when space allocated for fruit exports was not utilised by the DFB. It was usually a result of administrative deficiencies between the board and producers. The latter tended to overestimate the volume of fruit they were able deliver to the board.²⁰ In turn, the DFB overbooked shipping space.²¹ Figure 11 shows that storage and shipping were poorly managed between 1960 and 1965. From mid-1960 the board developed a strategy to improve planning administration, regulation and the quota scheme.²² The regulation scheme forced farmers to estimate the size of their crops nine weeks before the season commenced, allowing the DFB to reserve shipping space accordingly.²³

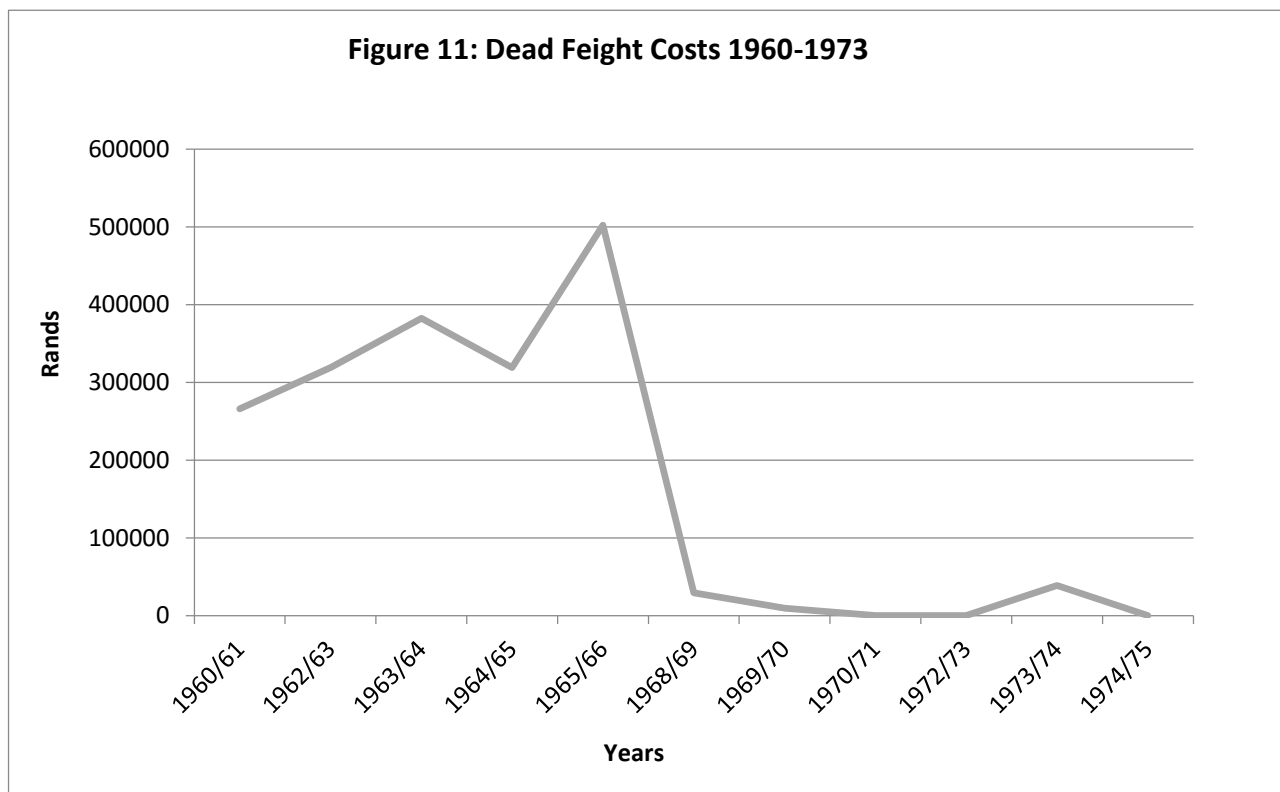
²⁰ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 5.

²¹ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 5.

²² UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 5.

²³ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1970*, 3-4.

The quota scheme dispersed weekly permits to producers specifying the volume of fruit they could deliver.²⁴ This prevented over or undersupplying and enabled the board to anticipate volumes. If producers did not comply with their quotas they were fined.²⁵ The board also arranged inland cold storage helping producers regulate supply to comply with their quota obligations.²⁶ Figure 11 shows the efficacy of these administrative improvements and a drop in dead freight costs by 1969.



Source: UCT Government Publications: *Deciduous Fruit Board Report, 1960-1975*

As the DFB's controlled marketing scheme spurred accumulation, producers began to put pressure on the board to modernise fruit marketing, which they thought would prop-up profit margins. Some members pushed for the DFB to adopt containerisation. Ginsburg, leader of the Food Technology Department of the Food and Fruit Technology Institute (FFTI) argued that containerisation would

²⁴ UCT Government Publications, *Deciduous Fruit Board Report for the Financial Year Ended September 1970*, 3-4.

²⁵ UCT Government Publications, *Deciduous Fruit Board Report for the Financial Year Ended September 1970*, 3-4.

²⁶ UCT Government Publications, *Deciduous Fruit Board Report for the Financial Year Ended September 1970*, 3-4.

benefit fruit marketing substantially especially with respect to preserving fruit quality and reducing handling costs.²⁷ Containers were refrigerated and temperatures were controlled to suit particular varieties of fruit.²⁸ At the time, all fruit was stored on board at a single predetermined temperature increasing the rate at which certain fruits perished.²⁹ Since quality was affected by handling, potential damage was reduced by decreasing handling of fruit. With warehousing fruit was handled on average eight times; containerisation would reduce this to two.³⁰ Containers would give farmers access to cold storage immediately after harvesting, while their existing circumstances forced them to transport fruit to a warehouse before it could be refrigerated.³¹ Consequently fruit was not kept at its optimum freshness. Finally containers could be conveniently placed on inland transport (trains) facilitating speedy distribution to markets.³² This would increase the DFB's capacity to regulate supplies to exploit market conditions. Containerisation promised to be a profit enhancing endeavour and producers demanded its implementation.

But farmers were disappointed. Dr Bestbier, agricultural economist and General Manager of the DFB believed that containerisation would not augment the value of deciduous fruit exports. Containers required specialised ships with appropriate compartments and dockyards with specialised cranes.³³ Shipping companies were concerned that ships equipped to handle containers would lose their versatility as carriers.³⁴ Because deciduous fruit exports were seasonal, containerisation could restrict shippers' market base.³⁵ Freight rates would increase. Producers

²⁷ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 179.

²⁸ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 179.

²⁹ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 179.

³⁰ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 179.

³¹ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 179.

³² National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 180.

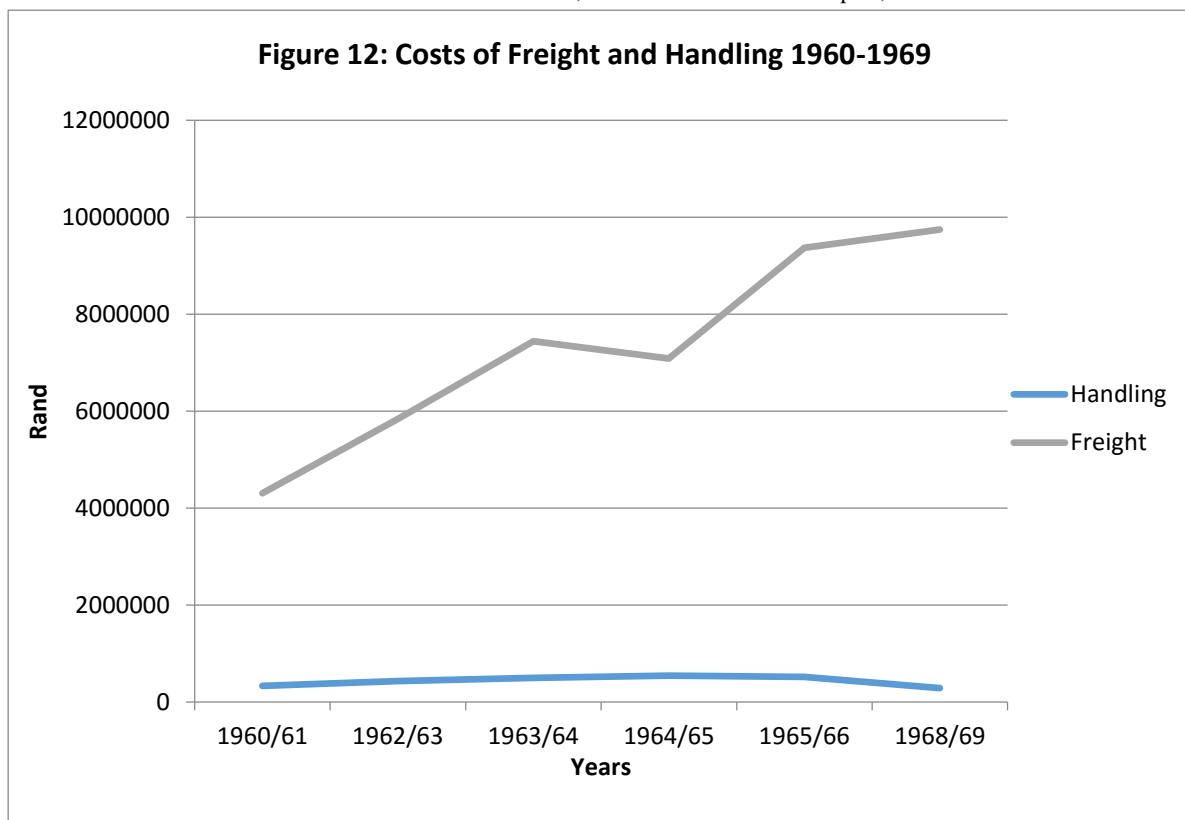
³³ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 163.

³⁴ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 163.

³⁵ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 163.

would not be the beneficiaries of higher fruit prices or more economical handling.³⁶ Because shipping companies financed upgrades to their vessels, they were inclined to increase freight rates to justify their investment. Figure 12 demonstrates the significance of freight to annual marketing costs, while handling was comparatively minor. Containerisation would be ineffective if reducing handling costs augmented freight costs. Bestbier explained that the DFB would avoid this substantial and non-remunerative investment until shipping company's modernised their vessels and containerisation became a requisite.

Source: UCT Government Publications, Deciduous Fruit Board Report, 1960-1969



Beyond marketing, the DFB provided financial assistance to farmers who traditionally experienced cash constraints during production, attempted to improve fruit quality by formalising production regulation standards and funded research to identify superior packing material for farmers.

³⁶ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 163.

Deciduous fruit is a seasonal commodity and due to its perishable traits could not be sold gradually throughout the year. Farmers experienced cash-flow constraints, which made supplementing production costs during the off-season challenging.³⁷ In the past, their solution was to obtain short term loans from private intermediaries at high interest rates. The DFB used the fruit received for marketing as collateral. The sheer volume of the commodity put the institution in a position to qualify for substantial loans at a reasonable interest rate. The DFB secured credit from another state institution, the Land Bank. Between 1952 and 1971, the Land Bank advanced R119 500 000 in seasonal loans to the DFB at a fixed interest rate of five percent.³⁸ The DFB dispensed credit to producers, redeemed it at the conclusion of the fruit marketing season, and met its loan obligations to the Land Bank.

The DFB emphasized the importance of quality for pricing. Unfortunately, many farmers continued to deliver substandard fruit. In an attempt to guide farmers in the right direction, the DFB formalised production standards and insisted that farmers must comply before the board would agree to market their fruit. In 1968 the board developed stricter maturity grading standards, compelling farmers to harvest fruit at a stage that would assist fruit preservation.³⁹ Picking premature or overripe fruit impacted the course of ripening and the end product.⁴⁰ The DFB also advised farmers on best practice farming techniques and superior cultivars, through its magazine, *The Deciduous Fruit Grower*.

The way fruit was placed in packages, the package design and material composition affected the standard of fruit. Deficiencies in packaging methods led to superficial bruising, while the material

³⁷ UCT Government Publications: *Land Bank Annual Report 1940-41*, 20.

³⁸ UCT Government Publications: *Land Bank Annual Report 1952-71*.

³⁹ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 136.

⁴⁰ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 136.

used affected the way fruit ripened.⁴¹ The DFB funded research and development (R&D) in packaging via mandatory levies charged on each box of fruit delivered to the board.⁴² It funded the development of a package laboratory that simulated the conditions fruit underwent during transport or handling.⁴³ Cartons progressively replaced cases as appropriate packaging for apples, pears and peaches and palletisation was integrated into the process of handling fruit.⁴⁴

From 1945 to about 1970, South African deciduous fruit exports to its primary market the United Kingdom (UK) continued with little competition.⁴⁵ The industry was protected by South Africa's favourable geographic position. Seasonality was complimentary as the Southern Hemisphere's summer coincided with the North's winter.⁴⁶ South Africa could capitalise on Northern deciduous fruit markets in their off-season. While there were fruit producing regions with similar seasonal patterns, including Australia, New Zealand and Argentina, South Africa's comparative advantage over Southern Hemisphere competitors was its proximity to the UK.⁴⁷

South Africa's comparative advantage generated strong financial incentive to improve deciduous fruit production. Productivity enhancing investments would increase the profit margin, while the risk premium of the investment was low as northern markets were relatively secure. However, some farmers relied exclusively on the lower marketing expenditure to compensate for their excessive production costs.⁴⁸ Rival fruit producing regions sought to bridge this gap. In Europe, improvements to cold storage facilities allowed for offseason sales and threatened South Africa's

⁴¹National Library of South Africa: *The Deciduous Fruit Grower* 20(12), 336.

⁴² National Library of South Africa: *The Deciduous Fruit Grower* 20(12), 336.

⁴³ National Library of South Africa: *The Deciduous Fruit Grower* 20(12), 336.

⁴⁴ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1980*, 5.

⁴⁵ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1975*, 18.

⁴⁶ H. Pickstone, 'The Cape Fruit Industry', *The Journal Of the Royal African Society*, 16(64) (1917): 287-296.

⁴⁷ H. Pickstone, 'The Cape Fruit Industry', 295.

⁴⁸ National Library of South Africa: *The Deciduous Fruit Grower* 18(6), 162.

seasonal leverage.⁴⁹ There was a sharp rise in productivity in Australia, as the state advanced subsidies per package of fruit produced.⁵⁰ Finally, years of continually high apple prices generated an exponential upsurge in the volume produced internationally.⁵¹ By 1969, apples constituted 59 percent of the DFB's annual gross income and most land suited to deciduous fruit farming comprised of apple trees.⁵² But South Africa's hold on the European apple market was at risk as Argentina, Italy and France made significant advancements to production.⁵³

South African deciduous fruit exporters experienced cost constraints when imperial preference ceased in 1973. Marketing costs increased. Import tariffs were enforced on all fruit sent to the UK. To accommodate South Africa, Britain did not impose the full tariff initially. It increased annually by 20 percent until the duty reached its entirety in 1980. Import tariffs were steep. Duties on apricots were 25 percent, peaches 22 percent, pears 10 percent, grapes 18 percent and apples 10 percent.⁵⁴ Secondly all members of the EEC had to comply with a common agricultural policy.⁵⁵ This guaranteed a market base and satisfactory prices for produce cultivated by EEC members, by restricting or sporadically increasing import tariffs on foreign produce if necessary.⁵⁶

⁴⁹ National Library of South Africa: *The Deciduous Fruit Grower* 18(12), 397.

⁵⁰ National Library of South Africa: *The Deciduous Fruit Grower* 21(12), 328.

⁵¹ National Library of South Africa: *The Deciduous Fruit Grower* 22(9), 207.

⁵² National Library of South Africa: *The Deciduous Fruit Grower* 22(12), 291.

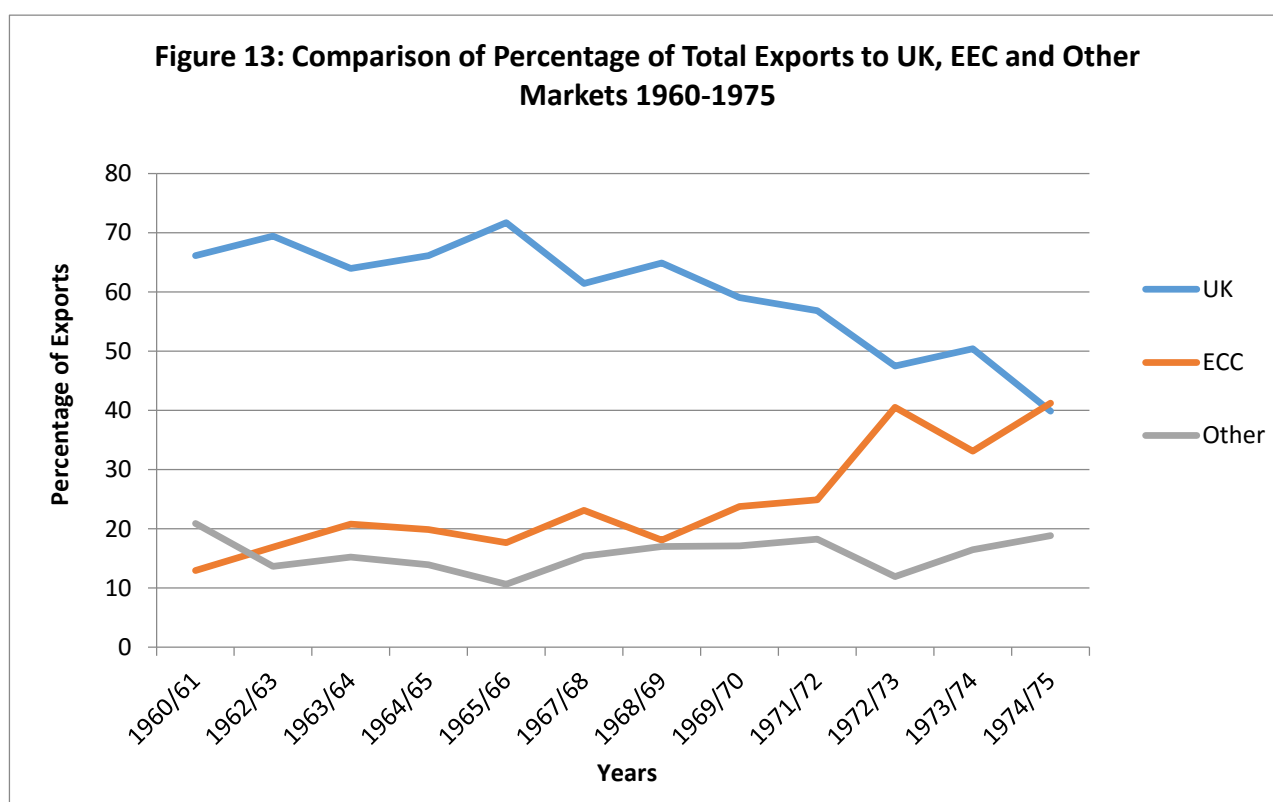
⁵³ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1969*, 18.

⁵⁴ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1975*, 18.

⁵⁵ National Library of South Africa: *The Deciduous Fruit Grower* 19(2), 25.

⁵⁶ National Library of South Africa: *The Deciduous Fruit Grower* 19(2), 25.

Nonetheless figure 13 shows that export dependence on the UK progressively declined from 1965 and that markets in Europe expanded. There were no shifts to markets such as the USA, Canada, Sweden, Finland or the Middle East.⁵⁷ Despite import tariffs, European nations were still the most accessible. Indeed, it was notoriously difficult to generate profit in North America despite the growth of its perishable food market from 1968 with the expansion of supermarkets.⁵⁸ In the USA, advancements in cold storage meant that California producers could store fruit for the winter. Chile and Argentina were in close proximity to North America and could deliver grapes and apples to this market cheaply.⁵⁹ Due to freight costs, South African fruit was excessively expensive and uncompetitive in the North American Market.⁶⁰



Source: *Deciduous Fruit Board Annual Reports 1960-1975*.

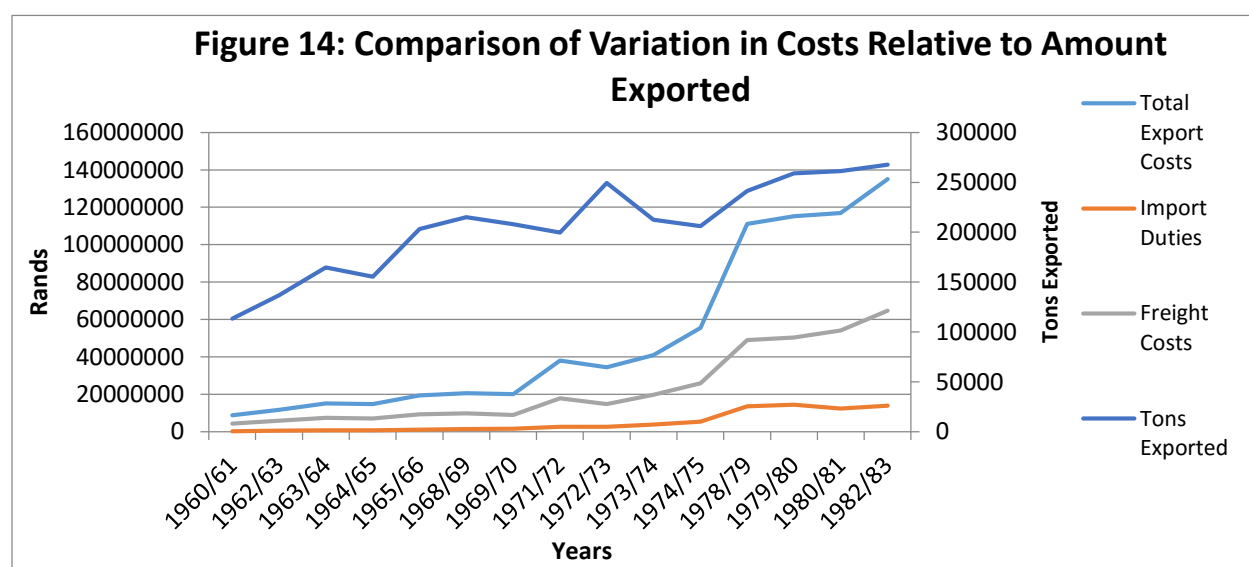
⁵⁷ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1970*, 17.

⁵⁸ National Library of South Africa: *The Deciduous Fruit Grower* 18(2), 37.

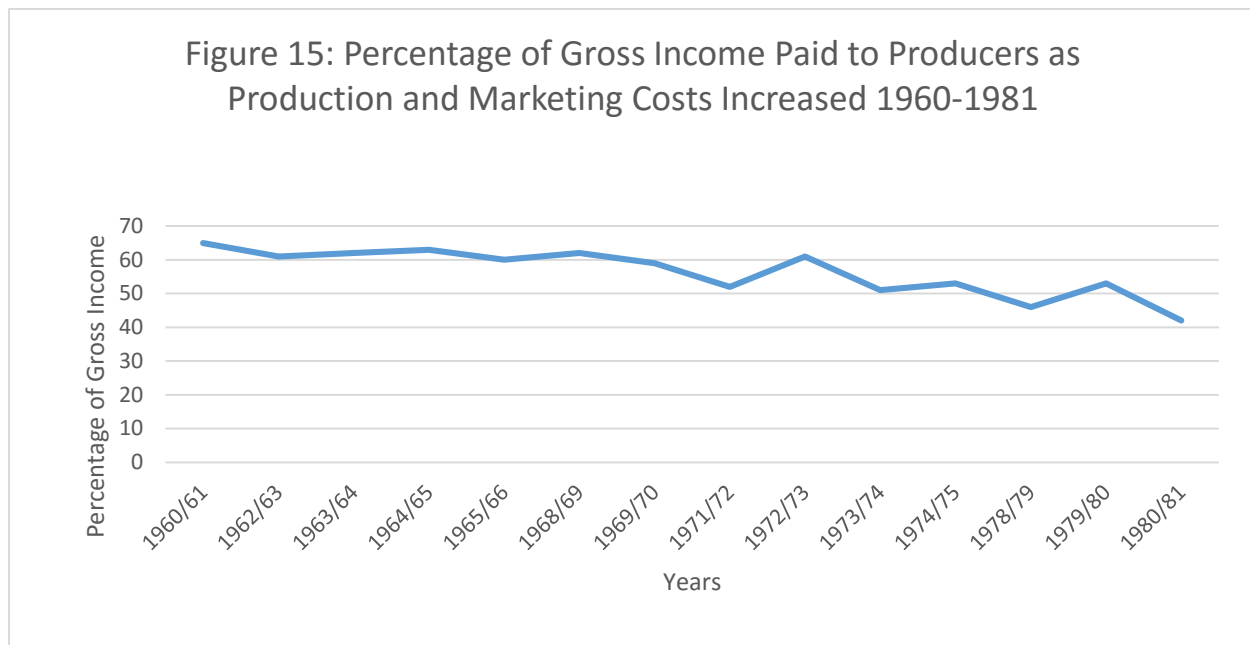
⁵⁹ UCT Government Publications: *Deciduous Fruit Board Report for the Financial Year Ended September 1975*, 2.

⁶⁰ National Library of South Africa: *The Deciduous Fruit Grower* 18(2), 37.

From 1973 the cost of exporting fruit soared, as demonstrated by figure 14. Between 1960 and 1970 marketing costs per ton of fruit remained stable with total costs fluctuating in accordance to the amount of fruit exported. The cost of fruit rose in 1971/72, but quickly resumed its stable course in the following season. From 1973/74 to 1982/83 there was a discrepancy between marketing costs and tons exported. It was most recognisable in 1978/79. Costs increased rapidly while the volume exported was gradual suggesting that fruit became more expensive to export per ton. To satisfy costs the DFB was forced to use a larger portion of export gross income, declining the seasons' balance distributed to producers. Figure 15 shows only 35 percent of gross income was dedicated to costs in 1960. It increased by 23 percent to 58 percent by 1980/81. The share of income distributed to farmers decreased correspondingly from 65 percent in 1960/61 to 42 percent in 1980/81. Profitability of controlled marketing dwindled and exposed the inadequacy of small scale producers whose financial indiscipline was evident. As state intervention became less influential larger, forward looking producers who were able to consolidate began to dominate the sector.



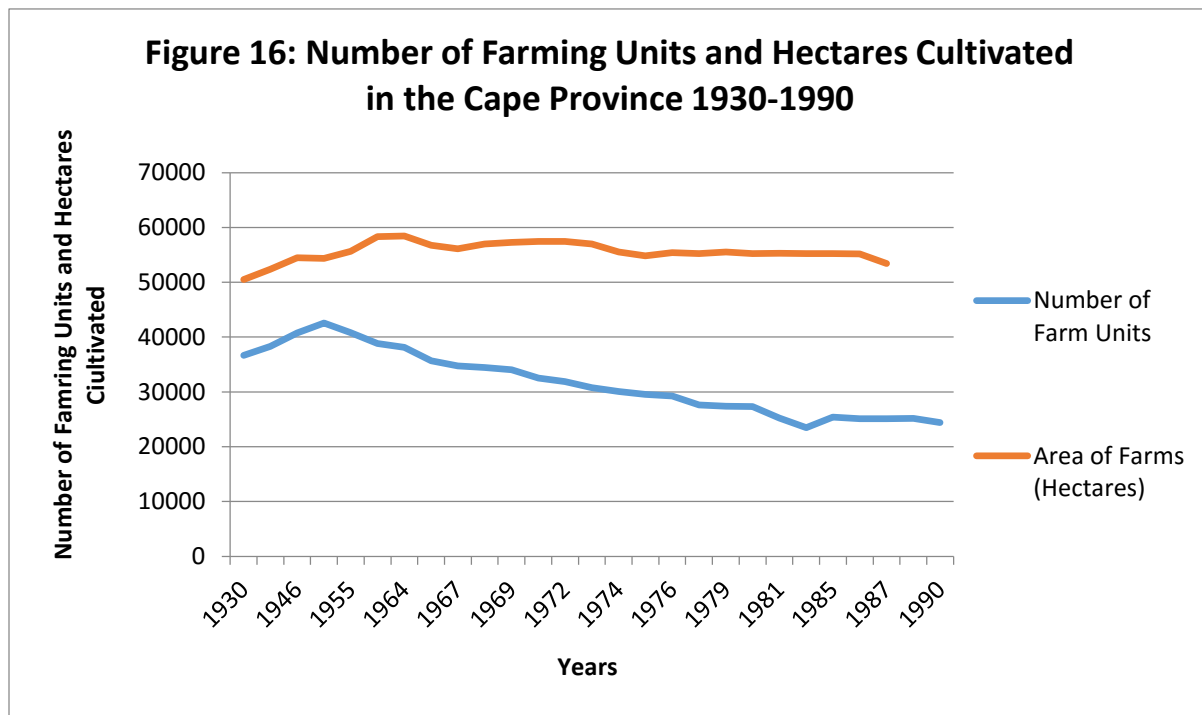
Source: *Deciduous Fruit Board Report, 1960-1983*



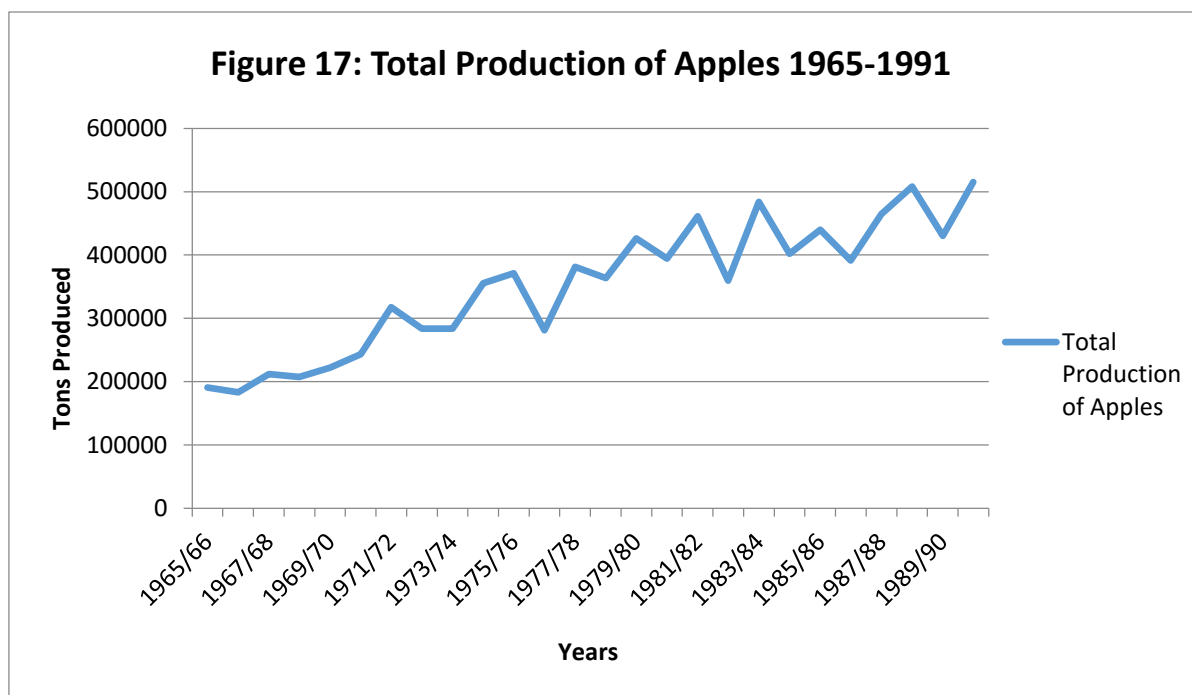
Source: *Deciduous Fruit Board Report, 1960-1981*

Unlike small scale farmers, big producers were less vulnerable to changing market conditions, investing capital to expand their productive capacity. Figure 16 demonstrates that the number of farming units throughout the Cape declined by 20 percent between 1973 and 1990, while the amount of land cultivated remained the same. Despite a decline in the number of farming units, figures 17 and 18 show that the tonnage of apples, pears and apricots produced annually increased between 1966 and 1990. Although there were fluctuations in the volume of fruit produced these were due to seasonal climatic conditions. What was important was that the general trend in output increased while the amount of land cultivated remained constant. This indicates that fewer, larger farming units were producing fruit more productively. The data is not sufficient to demonstrate that farmer's productivity improved, because it does not reveal the trend in total input costs of production relative to output. However, the data shows that while one input of production (farm

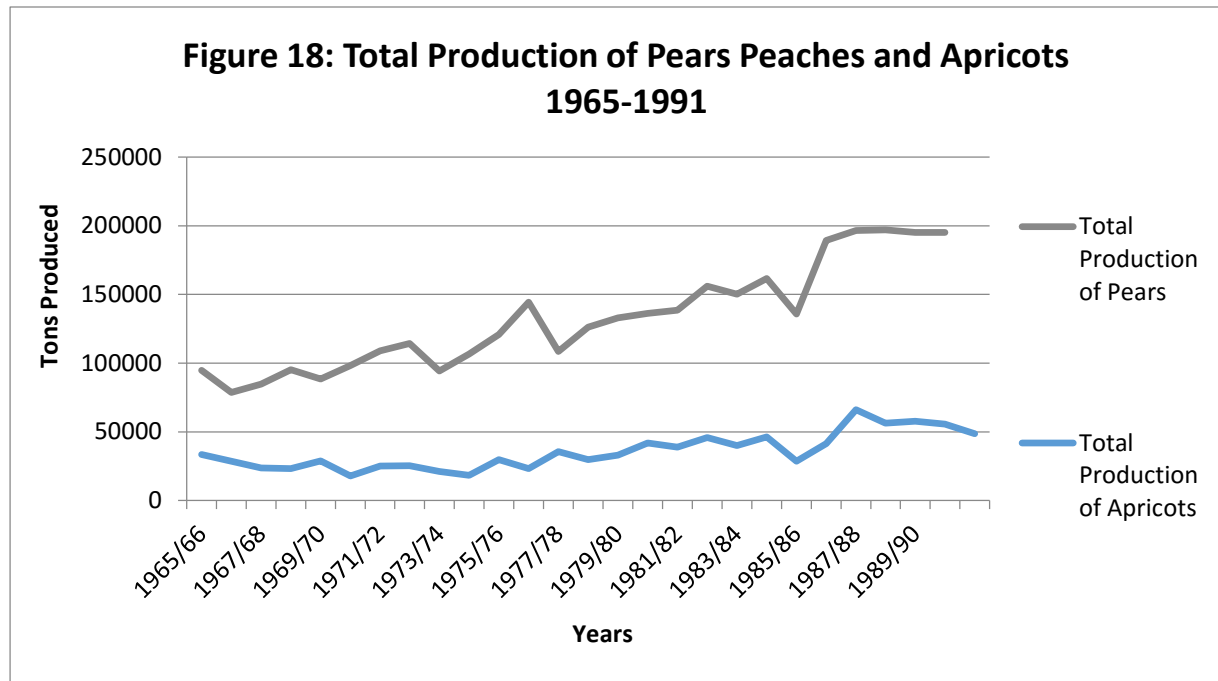
land) remained constant, output (apples, pears and apricots) progressively increased, suggesting more efficient use of land.



Source: *Abstract of Agricultural Statistics 1993*.



Source: *Abstract of Agricultural Statistics 1993*.



Source: *Abstract of Agricultural Statistics*, 1993.

As output increased and export markets narrowed farming companies sought to diversify the market for fresh fruit consumption. Elgin and Ceres, two farming regions that were forward looking, modernised production and played a major role in the transformation of the sector from mid-1970. Elgin farmers realised the importance of diversification. In a bid to diversify the market locally they collaborated with South African Breweries and hired Professor Luthi as fruit juice specialist in 1972.⁶¹ Luthi was an expert in the application of fruit juice technology. He had gained extensive knowledge of the industry in the world's leading fruit juice processing countries, Canada and the United States of America.⁶² His task was to develop Appletiser Pure Fruit Juices Pty Ltd.⁶³ By the following year over R2 000 000 had been invested in a fruit juice factory in Grabouw.⁶⁴ The processing machinery designed by Luthi was highly advanced, processing 750 tons of apple

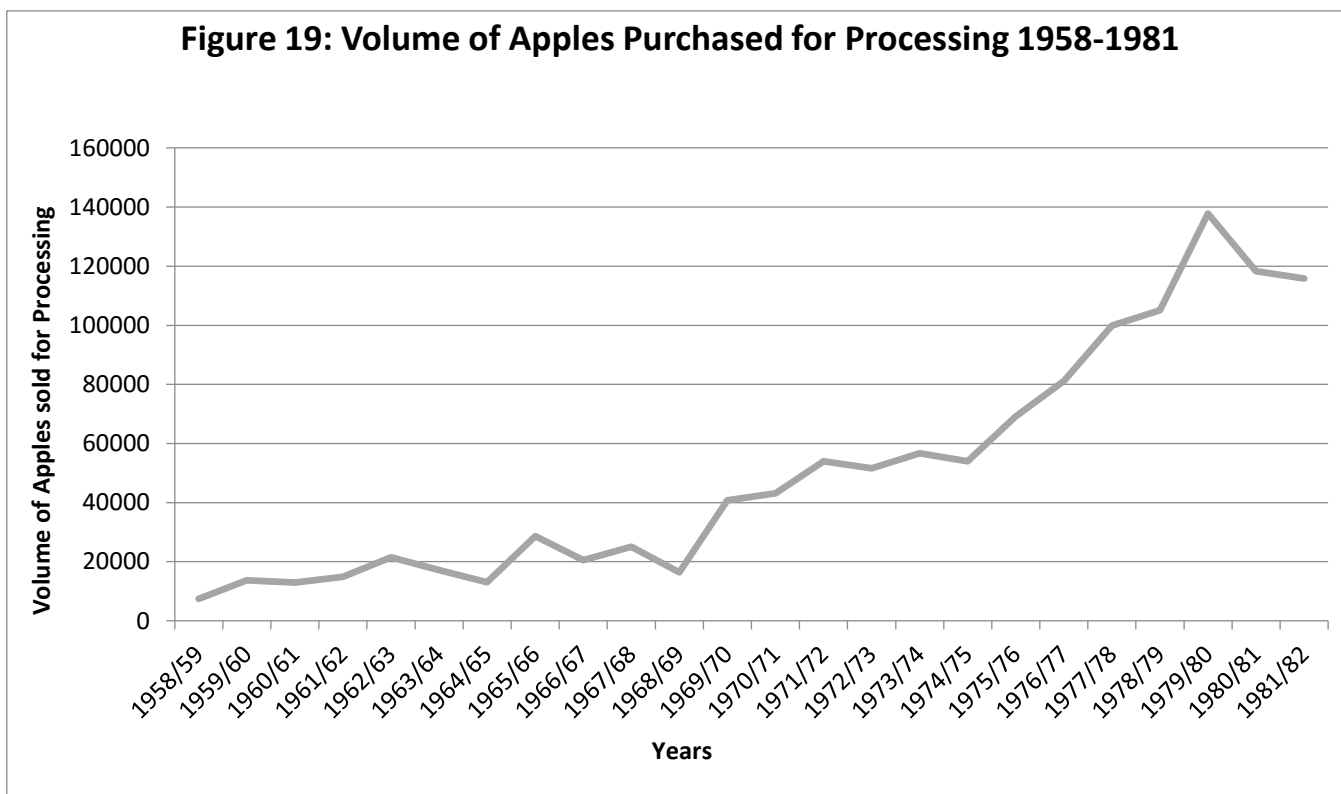
⁶¹ National Library of South Africa: *The Deciduous Fruit Grower* 22(5), 103.

⁶² National Library of South Africa: *The Deciduous Fruit Grower* 22(5), 103.

⁶³ National Library of South Africa: *The Deciduous Fruit Grower* 22(5), 103.

⁶⁴ National Library of South Africa: *The Deciduous Fruit Grower* 23(6), 128.

juice daily and 100 000 tons annually.⁶⁵ Appletiser rapidly became one of the largest juice processing factories in the world.⁶⁶ Supporting the development of Appletiser expanded Elgin producers' market base, as this industry consumed 17 percent of the apple harvest annually.⁶⁷ In 1972 the Ceres Fruit Growers Association completed a fruit juice processing factory.⁶⁸ Production was anticipated to start in 1973.⁶⁹ Figure 19 shows that the volume of apples processed increased substantially after 1973 with the expansion of Appletiser and Ceres Fruit Juices. The growth of the apple juice processing industry was exponential and the volume of apples sold to processors increased by 94 percent.



Source: *Abstract of Agricultural Statistics*, 1993.

⁶⁵ National Library of South Africa: *The Deciduous Fruit Grower* 23(6), 128.

⁶⁶ National Library of South Africa: *The Deciduous Fruit Grower* 23(6), 128.

⁶⁷ National Library of South Africa: *The Deciduous Fruit Grower* 23(6), 128.

⁶⁸ National Library of South Africa: *The Deciduous Fruit Grower* 21(3), 48.

⁶⁹ National Library of South Africa: *The Deciduous Fruit Grower* 21(3), 48.

In sum, the DFB's influence over marketing deciduous fruit resolved undercapitalisation. Their interventions promoted stability, managed resources efficiently, diminished costs of R&D and made information for improved farming practices accessible. Farmers who lacked even the most basic infrastructure and market organisation three decades before, were able to identify an opportunity in the face of adversity, fund the importation of fruit juice experts and the construction of capital intensive processing implements. The deciduous fruit sector was a model of capitalist development. Private property was a necessary precondition, but state support unlocked farmers capacity to spur development.

The Wheat Sector

The history of the Wheat Industry Control Board (WICB) provides further insight into the power of state intervention as a driver of capitalist development. The WICB provided support that protected all wheat producers. By 1970 intervention was relatively ineffective. Farmers remained inefficient producers of low quality wheat. State support increased in 1970, but intervention was focussed on regions best suited to wheat farming to enhance the allocative efficiency of resources. Beneficiary's income remained stable amid deregulation and harsh economic conditions.

According to Dr F. Tomlinson, Economist in the Department of Agriculture and Forestry, "there was practically no increase in the general trend of production" of wheat in the Union between 1910 and 1928.⁷⁰ There was an upsurge in the number of bags produced from 1929, but this was a result of more land used for wheat production rather than improvements in productivity. The area for wheat production between 1919 and 1933 increased by 37.27 percent, while the number of bags produced only increased by 39.89 percent.⁷¹ Over 14 years the number of bags produced per

⁷⁰ UCT Government Publications: *Farming in South Africa 1935*, 68.

⁷¹ UCT Government Publications: *Farming in South Africa December 1936*, 514.

morgen only increased by 2.62 percent. By 1934 the area used for wheat farming increased by 44.58 percent, while the number of bags produced increased by 29.82 percent.⁷² Productivity declined as the number of bags produced per morgen decreased by 14.76 percent. Various government officials and academics attributed this to uninformed production methods and planting in unsuitable regions.^{73 74}

P. Vorster a researcher from the Stellenbosch-Elsenburg School of Agriculture stressed that poor soil quality caused by incorrect crop rotation schedules was inhibiting wheat production.⁷⁵ In the Cape Province, South Africa's foremost wheat producing region, half of arable land was dedicated to wheat production and the balance fallowed for the coming year.⁷⁶ Unceasing fallowing rendered soil infertile as the top soil which contains humus and other nutritious properties could not replenish quickly enough due to regular ploughing.⁷⁷ Negligent soil conservation led to poor wheat yields per morgen of land. Further a large portion of output was lost unnecessarily as weed invasions and grain diseases (like rust, flag-smut and root-rot) thrived in these conditions.⁷⁸ These nuisances troubled even the most advanced wheat producing nations in the world, like Canada, the United Kingdom and Australia.⁷⁹ Internationally, it was estimated weeds reduced wheat crops an average of 12.4% per harvest.⁸⁰ This percentage was probably higher in South Africa as farmers

⁷² UCT Government Publications: *Farming in South Africa 1935*, 68.

⁷³ UCT Government Publications: *Farming in South Africa 1937*, 205.

⁷⁴ W, Pretorius of the Division of Economics and Markets; Dr Tomlinson of the Department of Agriculture and Forestry; Dr Turpin of the Division of Agricultural Education and Extension; P. Vorter of the Department of Field Husbandry at Stellenbosch-Elsenburg College of the University of Stellenbosch; Dr Hofmeyer a lecturer in field husbandry at the Glen School of Agriculture in the Orange Free State.

⁷⁵ UCT Government Publications: *Farming in South Africa 1937*, 205.

⁷⁶ UCT Government Publications: *Farming in South Africa 1937*, 205.

⁷⁷ UCT Government Publications: *Farming in South Africa 1937*, 205.

⁷⁸ UCT Government Publications: *Farming in South Africa 1937*, 205.

⁷⁹ National Library of South Africa: *Farmers Weekly June 1970*, 7.

⁸⁰ National Library of South Africa: *Farmers Weekly June 1970*, 7.

only started using effective weed control chemicals from mid-1960.⁸¹ Planting unsuitable wheat varieties aggravated the situation further.

Wheat research by 1930 was limited.⁸² The first major project commenced in 1929 in Jongensklip, between Caledon and Swellendam in the Western Province.⁸³ Four years later, new varieties with ‘superior’ genes were discovered and distributed. The first was Pilgrim, a relatively rust resistant strain (one of the most common wheat diseases).⁸⁴ It was not profitable variety due to its poor baking quality.⁸⁵ Second was Sterling, a high yielding variety of high baking quality.⁸⁶ It was very susceptible to rust undermining its high yield potential.⁸⁷ Other varieties included Farrartrou and Belista, but these too possessed unfavourable traits. Farrartrou did not bake well and Belista was vulnerable to flag smut (a bacterial disease).⁸⁸ New varieties were not ideal, but comparative tests indicated that all old varieties, including Flourence, Kleintrou, Gluttery, Babriet and Red Egyptian were less remunerative to sow.⁸⁹ Poor farming techniques and little progress in wheat research explains why farmers underperformed between 1910 and 1937.

The WICB was established in 1938 along with the Winter Cereal Control Scheme.⁹⁰ The WICB’s scope of representation was broad comprising 21 members; eight representatives of winter cereal producer co-operatives, three producers that represented all winter cereal farmers unaffiliated with

⁸¹ National Library of South Africa: *Farmers Weekly* June 1970, 7. Farmers only started using Tribunil, an effective repellent that not only killed the weed, but was also absorbed in to the weeds root, killing germinating weeds that might have survived.

⁸² UCT Government Publications: *Farming in South Africa* November 1936, 469.

⁸³ UCT Government Publications: *Farming in South Africa* November 1936, 469.

⁸⁴ UCT Government Publications: *Farming in South Africa* November 1936, 469.

⁸⁵ UCT Government Publications: *Farming in South Africa* November 1936, 469.

⁸⁶ UCT Government Publications: *Farming in South Africa* November 1936, 469.

⁸⁷ UCT Government Publications: *Farming in South Africa* November 1936, 469.

⁸⁸ UCT Government Publications: *Farming in South Africa* November 1936, 469. Flag smut is a disease that affects the appearance and growth cycle of wheat.

⁸⁹ UCT Government Publications: *Farming in South Africa* November 1936, 470.

⁹⁰ UCT Government Publications: *Wheat Industry Control Board Annual Report* 1962, 2.

co-operatives, three representatives of wheat and rye millers, one representative for processors of barley and oats, one representative for bakers of rye and wheaten bread, one representative for ‘middlemen’ that dealt with the distribution of winter cereals, three representatives for winter cereal consumers and finally one government agent that acted on behalf of the Department of Agricultural Economics and Marketing.⁹¹ Because the majority of seats on the board were reserved for producers, their interests were the WICB’s priority.

The WICB operated within the confines of the Marketing Act of 1937. It was the only body authorised to fix the price of locally produced wheat or wheaten products and could impose sanctions on producers, distributors or processors that sold them below or above the predetermined price.⁹² The WICB used South Africa’s two foremost wheat producing regions, Swartland and Ruens situated in the Cape Province as benchmarks for the national average.⁹³

After the harvest, wheat producers delivered most of the crop to agents that were accredited by the WICB. These were generally marketing co-ops. Agents were expected to grade and provide storage for produce. They were responsible for raising sufficient short term credit to pay producers’ the fixed price per bag of wheat delivered and were held accountable for remunerating creditors with the principle advancement and accumulated interest.⁹⁴ Agents faced high risk. There was no guarantee that their entire purchase would be sold. Thus the WICB ensured that they accessed credit from the Land Bank at a low interest rate.⁹⁵ The WICB remunerated them for their services, as they were paid a fixed commission (formulated by the WICB) per bag of wheat that they sold.⁹⁶

⁹¹ UCT Government Publications: *Wheat Industry Control Board Annual Report 1962*, 2.

⁹² UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

⁹³ UCT Government Publications: *Wheat Industry Control Board Annual Report 1952*, 26.

⁹⁴ UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

⁹⁵ UCT Government Publications: *Wheat Industry Control Board Annual Report 1952*, 26.

⁹⁶ UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

The board functioned as a third party supervisor of agents who were prone to profiteering at the expense of wheat producers and consumers. Price was determined by the class (baking quality) and grade (physical characteristics) of wheat. Agents were required to have formal training in wheat grading. They reportedly graded produce incorrectly to pay producers' less for high quality wheat, or make consumers pay more for lower grades. The board intervened to regulate the cereal grading system, the general quality of locally produced wheat and the standard of marketing of wheat and wheaten products, and advised the Minister of Agriculture and Forestry on suitable legislative steps.⁹⁷ The WICB also employed inspectors to check produce depots to minimise agent's opportunistic inclinations.

South Africa was not self-sufficient in wheat production. Output neither satisfied domestic demand nor was it of a satisfactory quality.⁹⁸ Bakers often mixed high quality imported wheat with local wheat to counteract the ill-effects of undesirable traits.⁹⁹ Although wheat imports were imperative, the WICB monitored over-importation or excessive marketing of foreign wheat so that it did not threaten the livelihood of South African wheat farmers.¹⁰⁰ The WICB set higher fixed prices for imported wheat relative to local output, and pegged import quotas to local production and demand cycles.¹⁰¹

From the 1930s R&D was much needed in the wheat sector. Research to discover superior varieties was the cornerstone of a successful wheat industry and state intervention was vital to force farmers to invest in their own advancement. The WICB imposed a compulsory R&D levy

⁹⁷ UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

⁹⁸ UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

⁹⁹ UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

¹⁰⁰ UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

¹⁰¹ UCT Government Publications: *Wheat Industry Control Board Annual Report 1939*, 4.

on each bag of wheat sold by producers.¹⁰² At just one penny per bag the levy was not opposed by farmers, but R&D remained weak until 1960.

From 1940, demand for local wheat increased as imports of staple foods ceased.¹⁰³ Demand accelerated further as the Tariff Act of 1924 was reinforced by the war time economy.¹⁰⁴ Few foreign produced manufactures breached the country's borders.¹⁰⁵ More black labourers were employed by industry. Less time to cook traditionally favoured foods like mealie meal and an improved living standard meant that blue collar labourers could afford ready-made staples, especially bread.¹⁰⁶ An increase in demand led to intensive production and inflated the price of domestic wheat.¹⁰⁷

There was an upsurge in monoculture throughout wheat producing areas. According to a government statement, "even in ten short years much suitable land for grazing and the production of other crops has been ruined through one-cropping".¹⁰⁸ Land prices also inflated. In the Cape Province and Orange Free State, South Africa's two prominent wheat producing regions, land prices increased by 174 percent and 137 percent between 1939 and 1949.¹⁰⁹ During this period intervention by the WICB was opposed by farmers. The WICB's fixed wheat price was lower than the commodities' market value during the war.¹¹⁰ The board deflated prices, because of the consequences of irregular high prices.¹¹¹ To boost production, the WICB inflated the price of land suited to wheat production far beyond its productive capacity and encouraged owners to replace

¹⁰² UCT Government Publications: *Wheat Industry Control Board Annual Report 1940*, 4.

¹⁰³ UCT Government Publications: *Farming in South Africa December 1941*, 404.

¹⁰⁴ UCT Government Publications: *Farming in South Africa December 1941*, 404.

¹⁰⁵ National Library of South Africa: *Farmer's Weekly 28 March 1958*, 74.

¹⁰⁶ National Library of South Africa: *Farmer's Weekly 28 March 1958*, 74.

¹⁰⁷ National Library of South Africa: *Farming in South Africa December 1941*, 405.

¹⁰⁸ National Library of South Africa: *Farmer's Weekly 18 September 1940*, 23.

¹⁰⁹ UCT Government Publications: *Land Bank Annual Report 1950*, 3.

¹¹⁰ National Library of South Africa: *Farmer's Weekly 28 March 1958*, 74.

¹¹¹ National Library of South Africa: *Farmer's Weekly 28 March 1958*, 74.

less remunerative produce with wheat, even if wheat was not suited to the physical environment.¹¹² When boom conditions subsided prices collapsed. Wheat farmers fell into debt. The productive capacity of the land was not sufficient to repay loans. Wheat farmers were also susceptible to insolvency after crop failures, because they lacked an alternative marketable commodity due to monoculture.¹¹³ Boom conditions also affected quality and prices, as excellent wheat did not grow on unsuitable land.¹¹⁴

Nevertheless, the WICB's strategy mitigated the severity of consequences caused by abnormally high prices. Left to the free market, the rate of overcapitalisation and one-cropping promised to be far more severe.¹¹⁵ The industry remained functional when the boom ceased, indicating that the WICB's ploy was executed satisfactorily. Apart from conserving stability, fixed prices were formulated as an incentive to improve the quality of wheat.

The WICB's price fixing policy encouraged farmers to prioritise quality. The board offered a higher price for excellent wheat, namely Class A Grade 1 (A1). On average, the price of A1 was between 12 and 15 percent higher than substandard wheat.¹¹⁶ While it cost more to produce A1 wheat, its higher yield potential and superior quality compensated for higher input costs.¹¹⁷ From 1947 to 1966 the number of bags cultivated per morgen remained constant and South Africa was considered one of the least efficient wheat producing nations measured by the ratio of land cultivated to bags produced.¹¹⁸ South Africa only surpassed the one million ton mark twice.¹¹⁹ Apart from small yields, the bulk of the crop comprised low grade of poor baking quality. In 1943

¹¹² National Library of South Africa: *Farmer's Weekly* 18 September 1940, 23.

¹¹³ National Library of South Africa: *Farmer's Weekly* 18 September 1940, 23.

¹¹⁴ National library of South Africa: *Farmer's Weekly* 28 March 1956, 74.

¹¹⁵ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1972*.

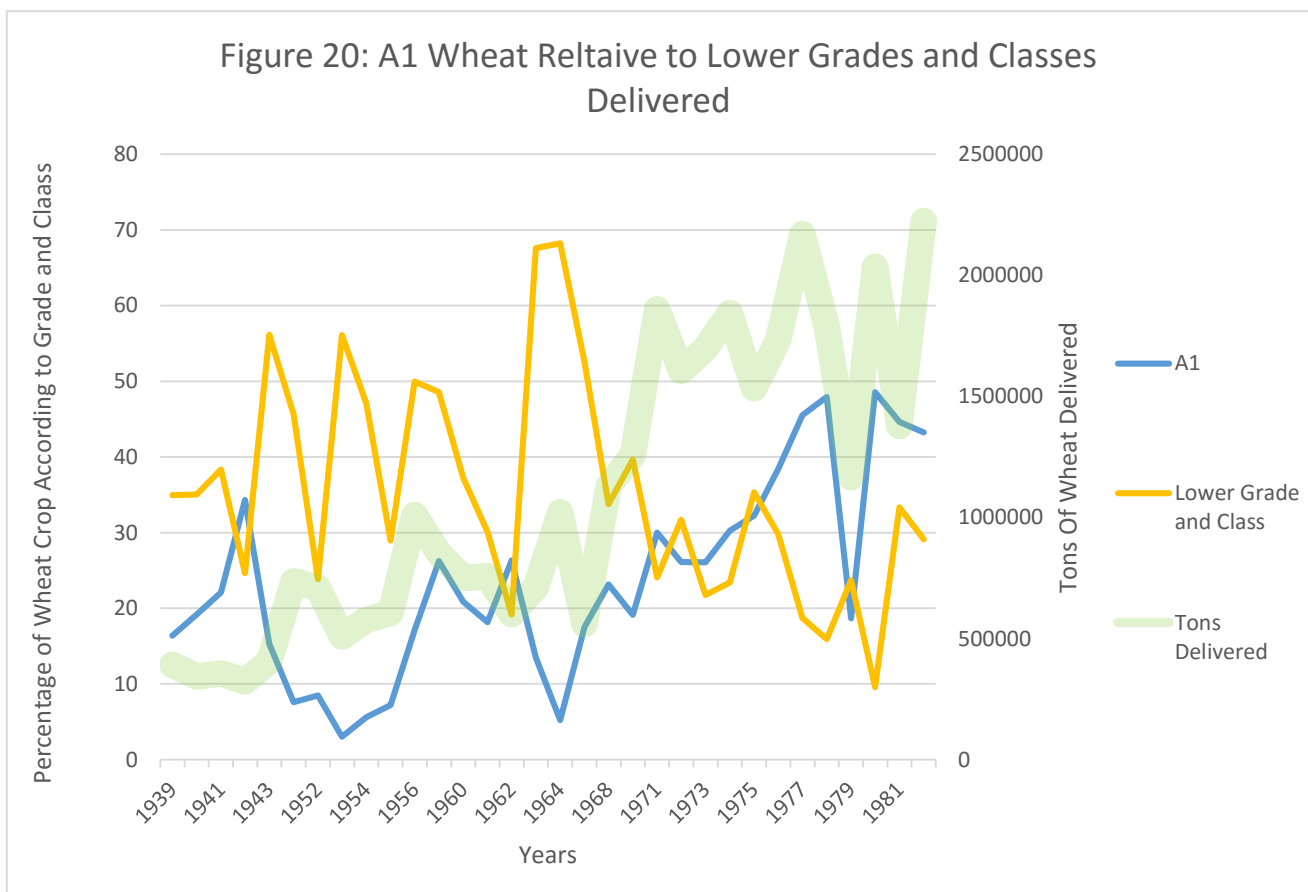
¹¹⁶ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1972*.

¹¹⁷ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1972*.

¹¹⁸ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1972*.

¹¹⁹ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1966*.

and 1962 the output of A1 exceeded less valuable, undesirable produce, but every other year until 1972 the bulk of the crop comprised substandard wheat.¹²⁰ According to figure 20, between 1939 and 1970 the proportion of substandard wheat exceeded excellent varieties by far. Farmer's delivered 286 percent more substandard wheat than A1. There was a severe shortage of suitable wheat and South Africa became heavily dependent on imports to satisfy the requirements of local bakers.¹²¹ But farmers still neglected research to discover superior varieties for dryland and conventional wheat production.¹²² The WICB stepped in.¹²³



Source: *Wheat Industry Control Board 1939-1981*.

¹²⁰ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1972*.

¹²¹ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1971*.

¹²² UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1972*.

¹²³ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1939-1970*.

The WICB had accumulated enough from the levy per bag of wheat to fund the construction of a wheat research centre in Stellenbosch in 1960.¹²⁴ *The Farmer's Weekly* headline summed-up its importance for the industry; "The humble penny revolutionizes wheat breeding".¹²⁵ The centre had world leading wheat growth chambers and laboratories that were modelled on a Canadian wheat centre.¹²⁶ The facility attracted international attention and many scientists were keen to copy its design.¹²⁷ The centre's strength was that it could cultivate five generations of a new seed in a single year.¹²⁸ Innovative light technology in the chambers allowed stooling to occur in two days, rather than two weeks.¹²⁹ While it took fifteen years to cultivate ten generations in the past, new breeds could be certified and released within two years.¹³⁰ The growth chambers could replicate the physical environment of the different provinces, making it beneficial to all South African wheat producers.¹³¹ The facility made rapid progress in gene modification. Within the first year it released rust resistant wheat varieties suited to the Orange Free State and Transvaal, including Scheepers, Rooi Kleindring, Anjab and Queen Fan.¹³² The WICB also contributed to research stations in Caledon, Riversdale and Bredasdorp.¹³³ Decades after its inception, the WICB's strict levy collection was used to support struggling farmers.

Although the ratio of low to high quality wheat declined between 1960 and 1970, farmers still produced 160 percent more inferior wheat than A1.¹³⁴ Despite improved research the delivery of lower grades persisted. The problem, according to wheat specialists Professor Eddie Laubscher

¹²⁴ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹²⁵ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹²⁶ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹²⁷ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹²⁸ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹²⁹ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹³⁰ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹³¹ National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹³² National Library of South Africa: *Farmer's Weekly* 22 June 1960, 16.

¹³³ National Library of South Africa: *Farmer's Weekly* 17 June 1959, 31.

¹³⁴ National library of South Africa: *Farmer's Weekly* 11 March 1970, 40-45.

“Head of Agronomy at the University of Stellenbosch” and Professor I. Perold, “Chief of the Winter Rainfall Region” was a gap between research institutions and farmers.¹³⁵ Farmers did not incorporate superior seed into production, because there were no intermediary institutions to assist their transferral from research centres.¹³⁶ It cost more to purchase superior official seed and farmers were not convinced of its benefits.¹³⁷ Farmers were unaware of the significant profit gains derived from superior varieties and favoured unofficial seed because it cost less.¹³⁸ The WICB could not prohibit sales of unofficial seed because it was too costly to police, explained the chairman Mr M. Klerch.¹³⁹

The WICB along with the Wheat Research Section of the Stellenbosch-Elsenburg Agricultural College developed a scheme that connected researchers with farmers. However, the scheme was limited to regions ideally suited to wheat production.¹⁴⁰ The scheme focused on the Cape Province as it produced 55 percent of wheat in South Africa between 1940 and 1969 and 78 percent of A1 wheat.¹⁴¹ Areas in the Cape Province including Swartland and Ruens were prioritised. Wheat farmers in the Eastern Free State were not included, because the terrain was better suited to maize production. Farmers only used dryland wheat as a back-up for drought induced crop failures.

The scheme that was mobilised in 1970 in seventeen regions of the Cape Province formalised partnerships between researchers and farmers.¹⁴² Researchers completed tests that profiled micro-climatic and physical features of particular territories and advised farmers on the most suitable

¹³⁵ National library of South Africa: *Farmer's Weekly* 11 March 1970, 40-45.

¹³⁶ National library of South Africa: *Farmer's Weekly* 11 March 1970, 40-45.

¹³⁷ National Library of South Africa: *Farmer's Weekly* 11 March 1970, 45.

¹³⁸ National library of South Africa: *Farmer's Weekly* 11 March 1970, 40-45.

¹³⁹ National Library of South Africa: *Farmer's Weekly* 5 March 1966, 4.

¹⁴⁰ National Library of South Africa: *Farmer's Weekly* 11 March 1970, 45.

¹⁴¹ UCT Government Publications: *The Wheat Industry Control Board Annual Report 1947-1973*.

¹⁴² National Library of South Africa: *Farmer's Weekly* 11 March 1970, 45.

variety to plant.¹⁴³ Researchers also managed plots on farms reserved for testing seed to give farmers first-hand exposure to the benefits of superior strains.¹⁴⁴ Accompanying researchers were advisers employed on a full time basis by the WICB in Malmesbury, Bredasdorp, Caledon and Porterville.¹⁴⁵ They also distributed information from studies to farmers in the province that were not directly involved in the scheme.¹⁴⁶

Genetically modified wheat was far more expensive to cultivate, but its high yield potential and excellent quality increased profit margins.¹⁴⁷ Its nutritional requirements were greater and farmers had to apply between seventy and a hundred percent more fertilizer.¹⁴⁸ Traditionally fertilizer was dispersed on the surface, but new strains absorbed nutrients at a lower depth, which was a costly procedure.¹⁴⁹ The correlation between rising costs of production per ton and larger volumes and improved quality, indicates that more farmers were using better seed.

Figure 21 shows that production costs remained comparatively low between 1960 and 1973. When compared with figure 20 low input costs correspond with low volume, poor quality yields. Because lower costs per ton represent inferior wheat varieties, figure 21 suggests that farmers favoured unofficial, outdated varieties. From 1974 input costs rose suddenly and by 1978 it cost twice as much to produce a ton of wheat than it did in 1973.¹⁵⁰ Figure 20 and 21 show that between 1974 and 1978 the volume of wheat produced as well as the ratio of A1 to substandard wheat increased substantially. Because the area of wheat land in South Africa remained constant during

¹⁴³ National library of South Africa: *Farmer's Weekly* 11 March 1970, 40-45.

¹⁴⁴ National Library of South Africa: *Farmer's Weekly* 11 March 1970, 40.

¹⁴⁵ National library of South Africa: *Farmer's Weekly* 11 March 1970, 40-45.

¹⁴⁶ National Library of South Africa: *Farmer's Weekly* 11 March 1970, 41.

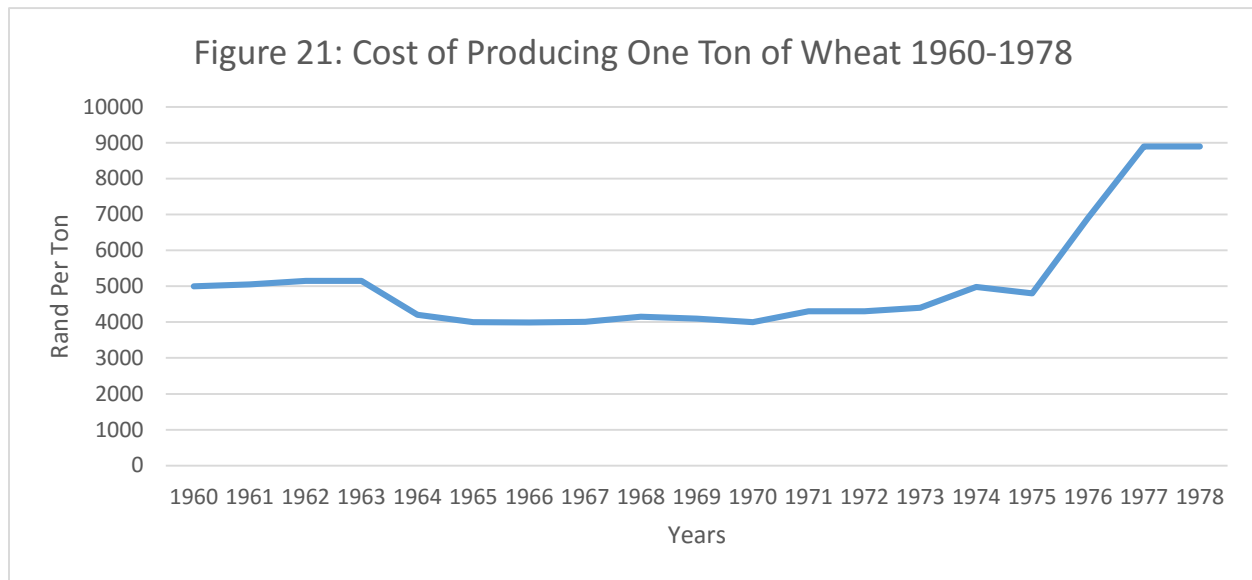
¹⁴⁷ UCT Government Publications: *House of Assembly Debates* 22 March to 11 May 1979 volume 80, 3253-6324.

¹⁴⁸ UCT Government Publications: *House of Assembly Debates* 22 March to 11 May 1979 volume 80, 3253-6324.

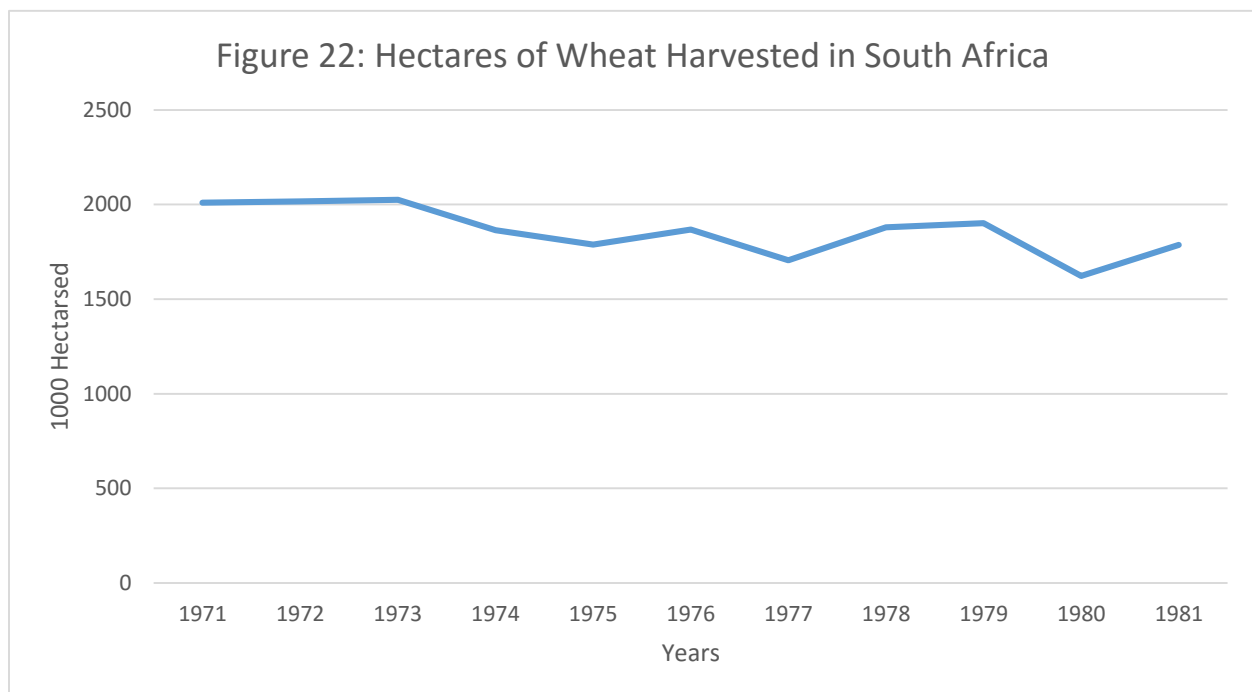
¹⁴⁹ UCT Government Publications: Republic of South Africa, House of Assembly Debates, 22 March to 11 May 1979 volume 80, 3253-6324.

¹⁵⁰ UCT Government Publications: *The Wheat Industry Control Board Annual Report*, 1973-1978.

this period (figure 22), higher input costs and improved output suggest that farmers adopted superior seed. The WICB had successfully bridged the gap between researcher and farmer.



Source: United State Department of Agriculture [Access Online at:
<http://www.indexmundi.com/agriculture/?country=za&commodity=wheat&graph=area-harvested>]



Source: United State Department of Agriculture [Access Online at:
<http://www.indexmundi.com/agriculture/?country=za&commodity=wheat&graph=area-harvested>].

Farmer's performance in the Eastern Free State compared with those in Swartland and Ruens, shows that only beneficiaries of the WICB scheme managed to stabilise profit margins despite market deregulations and input price hikes. In the Eastern Free State farmer's gross income per hectare of land cultivated (total income before the deduction of costs) between 1976 and 1986 increased by 175 percent, while the net farmer income (the farmer's actual profit after the deduction of costs) as a percentage of gross income declined from 33.5 percent in 1976 to 13.5 percent in 1986.¹⁵¹ In other words, farmers earned 60 percent less than they did ten years prior. Income earned per R100 invested by farmers also declined by 71 percent, from R8.20 to R2.34.¹⁵² Unregulated credit markets diminished the viability of wheat production in the Eastern Free State. In contrast farmer's in Swartland experienced a 259 percent increase in gross income, while the percentage of farmer net income to gross income increased by 925 percent.¹⁵³ The increased return per R100 invested was also impressive at 323 percent which amounted into R7.79.¹⁵⁴ Although these data are distorted as the region experienced a production crisis in the base year, farmers in Swartland outperformed those in the Eastern Free State despite similar economic constraints.¹⁵⁵ Production in Ruens remained stable over the period. Gross income increased by 191 percent and farmers net income by 163 percent, earning about R84 per hectare, R54 more than in the Eastern Free State.¹⁵⁶ There was evidence of a cost-price squeeze, where the percentage of net farmer

¹⁵¹ UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

¹⁵² UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

¹⁵³ UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

¹⁵⁴ UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

¹⁵⁵ UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

¹⁵⁶ UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

income to gross income declined by 3.2 percent between 1979 and 1985, while the return per R100 invested declined by 22 percent from R10.98 to R7.84.¹⁵⁷ Farmers in Ruens earned 238 percent more per R100 invested than wheat farmers in the in the Eastern Free State. Wheat producers that benefitted from the intermediary scheme remained viable despite increased market competition.¹⁵⁸

In sum, the wheat sector in the period 1910 to 1986 moved from a position of zero growth to profitability and self-sustaining growth. But this did not occur as a consequence of the protection of private property alone. State intervention in the form of financial support, direct intervention to weed out unsuccessful farmers, research and development and marketing were also required to establish wheat farming in South Africa.

Developmental state type intervention created an enabling economic environment for undercapitalised farmers in the deciduous fruit and wheat industries. Secure property in a market economy did not resolve capital deficits. Rational actors were deprived of the means to respond to 'perfect' markets. Capital was made accessible through market distortions that were regulated by state institutions, in these cases marketing control boards and the Land Bank. It took over thirty years before the DFB and WICB were able to constrain unproductive behaviour. In the meantime, market conforming methods replaced market forces; these incentivised farmers to allocate resources efficiently. The fact that fruit and wheat farmers were able to cope after markets were deregulated in a restrictive economic climate shows that the state struck a sound balance between intervention and competition. Intervention resolved capital deficits by enhancing the efficiency of resource allocation.

¹⁵⁷ UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

¹⁵⁸ UCT Government Publications: *Economic Advisory Council of the State President: Report of An Investigation into the restructuring of agriculture* 20 November 1986.

Summary and Conclusion

Private property and competition are essential for development. However in regions overcome by capital deficits they are not sufficient elements for capitalist growth. Economic development in these countries suggests that another institutional growth path, a path where state intervention facilitates competitive development rather than unproductive behaviour must be acknowledged by advocates of the NIE approach to economic development. This thesis has shown that the South African government resolved capital deficits more efficiently than private property, but continued to protect it. State support enabled farmers to exploit the incentive of private property. The state distorted markets to address capital constraints, but incorporated market conforming methods to ensure that accumulation and investment enhanced the competitiveness of South African agriculture.

From 1910, economic development in the settler economy of South Africa upheld most of the tenets of the NIE framework. Like Britain and other settler dominion states white South African society was organised by western institutions. National elections for whites constrained organisations. The Union, Pact and Apartheid governments were interested in development because they were held accountable for their actions. Organisations managed actor's economic activity through rational policies, while sanctions were imposed to punish noncompliance. By 1913 South Africa's institutional infrastructure upheld equality of opportunity for whites by protecting private property and looked set to follow the NIE growth model, but this did not materialise in agriculture until the mid-twentieth century.

Between 1910 and 1940 private property did not resolve capital deficits that hindered growth, even though demand for agricultural produce increased. Financial capital constraints limited farmers' capacity to reinvest in production. Most farmers were poor and credit markets inaccessible.

Widespread stock disease, undeveloped infrastructure and backward farming methods restricted accumulation. Without resources to capitalise their property white farmers remained undeveloped. Human capital deficits exaggerated the problem. Uneducated and inexperienced commercial producers lacked the ability to organise economies of scale for production, marketing and credit. Farmer's incompetence stalled the effectiveness of the co-op movement. Private property was necessary for capitalist agricultural development, but not sufficient.

In 1940 industrial concerns compelled the government to drive agricultural development. While the state continued to protect property rights, it also established public institutions that distorted market forces. Marketing control boards that regulated agricultural markets were introduced. These boards supplemented capital deficits efficiently. Boards' held statutory rights over marketing, which enabled price fixing. The policy stabilised farmers' income and promoted accumulation. Boards also worked closely with the Land Bank to make credit more accessible to farmers. Farmers had the means to invest in production.

The low standard of human capital undermined the efficiency with which the market regulated the flow of investment into production. Control boards used market conforming methods to replace market forces. Farmers were incentivised to invest in the most productive regions as the degree of assistance control boards offered corresponded with a regions' productive capacity. The DFB purposefully limited support to fruit farmers in the Cape Province, because the physical environment and climate were ideal for fruit production. The WICB provided equitable support to wheat farmers throughout South Africa, which proved ineffective. From 1970 it prioritised farmers in the Cape Province. State intervention compensated for ineffective markets and drove investment, but these factors were not sufficient to conclude that control boards promoted capitalist

development. As institutions, control boards also facilitated accumulation and reinvestment on the basis of a comparative advantage, and did so by terminating rather than enhancing competition.

This thesis has shown that the influence of control boards gradually declined as factors out of the state's control increased the cost of production and marketing. Market forces were reintegrated into agriculture after financial constraints forced the state to deregulate agricultural credit markets. Farmers and marketing boards paid market prices for credit. Because seasonal credit was central to production and marketing under the control board system, higher interest rates intensified the cost-price squeeze. But farmers coped. Deciduous fruit farmers turned to big business production that improved efficiency and diversified to value added production to expand fruit markets. Wheat farmers' market share was not threatened after deregulation because supply rarely satisfied local demand. Nevertheless higher costs diminished their profit margins. Producers responded by modernising production of superior seed, which improved output productivity and quality. Competent wheat farmer's income remained stable. Poor performances by certain farmers suggests that control boards protected weak farmers to some extent but only strong farmers were able to withstand deregulation. This shows that market conforming methods generally facilitated accumulation and reinvestment to promote competitive production. White South African agriculture developed because of state intervention, not in spite of it. The state's protection of private property was necessary for the functioning of markets. But state intervention to support undercapitalised, unskilled farmers enabled them to participate in these markets.

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